

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Black [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010226A      Rev. 2.5.06.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Carbon Black             | 1333-86-4  | Registered | 2156099    | < 10                      |
| Resin                    | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Carbon Black>

MAJOR HEALTH HAZARDS: suspect cancer hazard (in animals)

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Resin>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

## &lt;2-Propanol&gt;

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

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## 4. FIRST-AID MEASURES

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Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.6g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

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## 6. ACCIDENTAL RELEASE MEASURES

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Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

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Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

|  |  |
|--|--|
| Precautions  | : Not available.   |
| Safe handling advice   | : Not available.   |
| Storage:   |  |
| Technical measures   | : Keep away from oxidizing materials, ignition sources and high temperature. |
| Storage condition  | : Avoid direct sunlight.   |
|  | : Do not leave the products in high temperature space.                       |
|  | : Recommended temperature: 0-30 C.   |
| Incompatible products  | : (Information of components.)   |
| oxidizing materials, halogens  | Carbon Black   |
| oxidizing materials  | Resin  |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol  |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol  |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol   |
| Packaging materials  | : Not applicable.  |

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |  |
|-------|---|--|
| OSHA  | 3.5mg/m3 TWA<br>1000ppm TWA<br>400 ppm TWA, 500ppm STEL   | Carbon Black<br>Ethyl alcohol<br>2-Propanol                    |
| ACGIH | 3.5mg/m3 TWA<br>100mg/m3 ceiling (particulate)(aerosol)<br>1000ppm TWA<br>200ppm TWA, 400ppm STEL | Carbon Black<br>Ethylene glycol<br>Ethyl alcohol<br>2-Propanol |
| EC    | 3.5mg/m3 TWA<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)<br>1000ppm                | Carbon Black<br>Ethylene glycol<br><br>Ethyl alcohol           |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

|                           |  |
|---------------------------|--|
| Physical state and form   | : Middle viscous liquid.                 |
| Color                     | : Black.                                 |
| Odor                      | : Faint odor.                            |
| pH                        | : about 8.5                              |
| Boiling point             | : Not available. [Water/ 100 C]          |
| Melting point             | : <-10 C                                 |
| Flash point               | : Not applicable. [2-Propanol/ 11.7 C]   |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C] |

Explosion limits : Not applicable.  
 [ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ]  
 Density : about 1.1 / 25 C  
 Vapor density (air=1) : Not available. [2-Propanol/ 2.07-2.10]  
 Solubility in water : Soluble.  
 Evaporation rate : Not available.  
 Volatile : 78-81%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
 Hazardous reactions : Will not occur.  
 Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
 Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)  
 oxidizing materials, halogens Carbon Black  
 oxidizing materials Resin  
 oxidizing materials, bases, acids, reducing agents, metals Ethylene glycol  
 halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials Ethyl alcohol  
 acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts 2-Propanol

Hazardous decomposition products : (Information of components.)  
 oxides of carbon, water common decomposition products  
 sulfur compounds Carbon Black

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

### Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >10000mg/kg-Rat   | Carbon Black                                       |
|                 | 1650mg/kg-Cat,<br>4700mg/kg-Rat<br>3450mg/kg-Mouse<br>3600mg/kg-Mouse | Ethylene glycol<br><br>Ethyl alcohol<br>2-Propanol |
| Inhalation LC50 | 20000ppm-10H-Rat<br>11100ppm-4H-Mouse                                 | Ethyl alcohol<br>2-Propanol                        |
| Skin LD50       | >3000mg/kg-Rabbit   | Carbon Black                                       |
|                 | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit                                 | Ethylene glycol<br>2-Propanol                      |

Local effects  
 Irritant:inhalation, skin Carbon Black  
 Irritant:inhalation, skin, eye Ethylene glycol / Ethyl alcohol  
 Irritant:inhalation, eye 2-Propanol

**Chronic toxicity and long term toxicity**

Lungs may be affected by repeated or prolonged exposure at very high concentrations. Respiratory disorders.

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

The liquid defats the skin.

Carbon Black

Ethylene glycol

Ethyl alcohol

2-Propanol

**Signs and Symptoms of overexposure and aggravated by exposure**

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation<br>irritation,cough<br>irritation,nausea  | Carbon Black / Resin<br>Ethylene glycol / Ethyl alcohol<br>2-Propanol      |
| Skin contact     | irritation<br>irritation,dry<br>irritation,absorption  | Carbon Black / Resin<br>Ethylene glycol / Ethyl alcohol<br>2-Propanol      |
| Eye contact      | mechanical irritation,<br>discoloration of lids<br>irritation<br>irritation,redness<br>irritation,pain | Carbon Black<br><br>Resin<br>Ethylene glycol / Ethyl alcohol<br>2-Propanol |
| Ingestion        | nausea,vomiting<br>rash,vomiting<br>nausea,stomach pain  | Ethylene glycol<br>Ethyl alcohol<br>2-Propanol                             |
| Specific effects | IARC Group 2B<br>IARC Group 3  | Carbon Black<br>2-Propanol   |

**12. ECOLOGICAL INFORMATION**

Not available.

**13. DISPOSAL CONSIDERATIONS**

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

**14. TRANSPORT INFORMATION**

HS Code : 960820

**15. REGULATORY INFORMATION**

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)

: Carbon Black / Ethylene glycol / Ethyl alcohol / 2-Propanol

## EU labeling

25%&lt;=Xn;R22

F;R11

F;R11, Xi;R36

Ethylene glycol

Ethyl alcohol

2-Propanol

## CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

0.1%over

Carbon Black / Ethylene glycol / 2-Propanol

Ethyl alcohol

## Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

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## 16. OTHER INFORMATION

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This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Red [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010227A      Rev. 2.5.08.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Coloring agent           | Registered | Registered | Registered | < 10                      |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

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## 4. FIRST-AID MEASURES

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### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.7g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

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## 6. ACCIDENTAL RELEASE MEASURES

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Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.



**Storage:**

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)
- |  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Coloring agent / Resin |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
- Packaging materials : Not applicable.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

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Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>1000ppm TWA                                      | Titanium dioxide<br>Ethyl alcohol                        |
| ACGIH | 10mg/m3 TWA<br>100mg/m3 ceiling (particulate)(aerosol)<br>1000ppm TWA        | Titanium dioxide<br>Ethylene glycol<br>Ethyl alcohol     |
| EC    | 6mg/m3<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)<br>1000ppm | Titanium dioxide<br>Ethylene glycol<br><br>Ethyl alcohol |

Personal protective equipment : Not required.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Red.
- Odor : Faint odor.
- pH : about 8.2
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]
- Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]
- Explosion limits : Not applicable.  
[ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ]
- Density : about 1.1 / 25 C
- Vapor density (air=1) : Not available. [Ethyl alcohol/ 1.59]
- Solubility in water : Soluble.
- Evaporation rate : Not available.
- Volatile : 72-75%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Coloring agent / Resin |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |

Hazardous decomposition products : (Information of components.)

|                                       |                               |
|---------------------------------------|-------------------------------|
| oxides of carbon, water               | common decomposition products |
| oxides of titanium.                   | Titanium dioxide              |
| oxides of nitrogen.                   | Coloring agent                |
| miscellaneous decomposition products. | Resin                         |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |                               |                  |
|-----------------|-------------------------------|------------------|
| Ingestion LD50  | >24000mg/kg-Rat               | Titanium dioxide |
|                 | 1650mg/kg-Cat、                | Ethylene glycol  |
|                 | 4700mg/kg-Rat                 |                  |
|                 | 3450mg/kg-Mouse               | Ethyl alcohol    |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat | Titanium dioxide |
|                 | 20000ppm-10H-Rat              | Ethyl alcohol    |
| Skin LD50       | 9530uL/kg-Rabbit              | Ethylene glycol  |

Local effects                      Irritant;inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).                      Ethylene glycol

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note                      Ethyl alcohol

Signs and Symptoms of overexposure and aggravated by exposure

|            |                  |  |
|------------|------------------|--|
| Inhalation | irritation,cough | Titanium dioxide / Ethylene glycol / Ethyl alcohol |
|            | irritation       | Coloring agent                                     |
|            | headache,nausea  | Resin  |

|                  |   |   |
|------------------|---|---|
| Skin contact     | redness,swelling of skin<br>irritation<br>irritation,dry  | Coloring agent<br>Resin<br>Ethylene glycol / Ethyl alcohol                          |
| Eye contact      | irritation,redness<br><br>irritation  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin                         |
| Ingestion        | physiologically inert,intestinal obstruction<br>nausea,vomiting<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting | Titanium dioxide<br><br>Coloring agent<br>Resin<br>Ethylene glycol<br>Ethyl alcohol |
| Specific effects | IARC Group 2B   | Titanium dioxide  |

## 12. ECOLOGICAL INFORMATION

Not available.

## 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

## 14. TRANSPORT INFORMATION

HS Code : 960820

## 15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol / Ethyl alcohol

EU labeling

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Blue [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010228A      Rev. 2.5.06.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No.            | Concentration range (wt%) |
|--------------------------|------------|------------|-----------------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912               | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755               | 10- 30                    |
| Resins                   | Registered | Registered | Registered<br>Polymer | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786               | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617               | < 10                      |
| Coloring agents          | Registered | Registered | Registered            | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733               | < 10                      |
| Silica (amorphous)       | 7631-86-9  | Registered | 2315454               | < 10                      |
| Additive                 | Registered | Registered | Registered            | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Resin / Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

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## 4. FIRST-AID MEASURES

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### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.1g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

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## 6. ACCIDENTAL RELEASE MEASURES

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Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

|  |                        |
|--|------------------------|
| metals                                   | Titanium dioxide       |
| oxidizing materials                      | Resin / Coloring agent |
| halo carbons, metals, metal salts,       | Ethyl alcohol          |
| oxidizing materials, halogens,           |                        |
| peroxides, acids, metal oxides, bases,   |                        |
| combustible materials                    |                        |
| acids, metals, oxidizing materials,      | 2-Propanol             |
| combustible materials, halogens,         |                        |
| peroxides, bases, metal salts            |                        |
| oxidizing materials, bases, acids,       | Ethylene glycol        |
| reducing agents, metals                  |                        |
| halogens, acids, combustible materials,  | Silica (amorphous)     |
| metals, metal salts, oxidizing materials |                        |

Packaging materials : Not applicable.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

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Engineering measures : Not required.

### Control parameters (Information of components.)

|       |  |   |
|-------|--|---|
| OSHA  | 15mg/m3 TWA (Total dust)<br>1000ppm TWA<br>400 ppm TWA, 500ppm STEL<br>5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust]<br>5mg/m3(as Mo), 1mg/m3(as W)<br>[Soluble compounds]<br>20mppcf TWA (<1% crystalline silica) | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol<br>Coloring agent<br><br>Silica (amorphous) |
| ACGIH | 10mg/m3 TWA<br><br>1000ppm TWA<br>200ppm TWA, 400ppm STEL<br>5mg/m3(as Mo), 1mg/m3(as W)<br>[Soluble compounds]<br>100mg/m3 ceiling (particulate)(aerosol)   | Titanium dioxide /<br>Coloring agent<br>Ethyl alcohol<br>2-Propanol<br><br>Ethylene glycol  |
| EC    | 6mg/m3<br>1000ppm<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)   | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol  |

Personal protective equipment : Not required.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

|                           |   |
|---------------------------|---|
| Physical state and form   | : Middle viscous liquid.  |
| Color                     | : Not available.  |
| Odor                      | : Blue.   |
| pH                        | : about 8.4   |
| Boiling point             | : Not available. [Water/ 100 C]   |
| Melting point             | : <-10 C  |
| Flash point               | : Not applicable. [2-Propanol/ 11.7 C]  |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]  |
| Explosion limits          | : Not applicable.<br>[ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ] |
| Density                   | : about 1.2 / 25 C  |
| Vapor density (air=1)     | : Not available. [2-Propanol/ 2.07-2.10]  |
| Solubility in water       | : Soluble.  |
| Evaporation rate          | : Not available.  |
| Volatile                  | : 63-66%  |

---

## 10. STABILITY AND REACTIVITY

---

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol             |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halogens, acids, combustible materials, metals, metal salts, oxidizing materials   | Silica (amorphous)     |

Hazardous decomposition products : (Information of components.)

|                         |                               |
|-------------------------|-------------------------------|
| oxides of carbon, water | common decomposition products |
| oxides of titanium.     | Titanium dioxide              |
| oxides of nitrogen.     | Coloring agent                |
| crystalline silica.     | Silica (amorphous)            |



## 11.TOXICOLOGICAL INFORMATION

### (Information of components)

#### Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>3450mg/kg-Mouse<br>3600mg/kg-Mouse<br>≥5000mg/kg-Rat<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3160mg/kg-Rat | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol<br>Coloring agent<br>Ethylene glycol<br><br>Silica (amorphous) |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse  | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol  |
| Skin LD50       | 12800mg/kg-Rabbit<br>9530uL/kg-Rabbit   | 2-Propanol<br>Ethylene glycol  |

|               |   |   |
|---------------|---|---|
| Local effects | Irritant; inhalation, skin, eye<br>Irritant;inhalation, eye | Ethyl alcohol / Ethylene glycol<br>2-Propanol |
|---------------|---|---|

#### Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note.

Ethyl alcohol

The liquid defats the skin.

2-Propanol

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

#### Signs and Symptoms of overexposure and aggravated by exposure

|              |   |  |
|--------------|---|--|
| Inhalation   | irritation,cough<br><br>irritation<br>irritation,nausea   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol / Silica<br>Resin / Coloring agent<br>2-Propanol |
| Skin contact | irritation<br>irritation,dry<br><br>irritation,absorption   | Resin<br>Ethyl alcohol / Ethylene glycol /<br>Silica (amorphous)<br>2-Propanol                         |
| Eye contact  | irritation,redness<br><br>irritation<br>irritation,pain   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol / Silica<br>Resin / Coloring agent<br>2-Propanol |
| Ingestion    | physiologically inert,<br>intestinal obstruction<br>rash,vomiting<br>nausea,stomach pain<br>gastric disturbances<br>nausea,vomiting | Titanium dioxide<br><br>Ethyl alcohol<br>2-Propanol<br>Coloring agent<br>Ethylene glycol               |

|                  |                               |   |
|------------------|-------------------------------|---|
| Specific effects | IARC Group 2B<br>IARC Group 3 | Titanium dioxide<br>2-Propanol / Silica (amorphous) |
|------------------|-------------------------------|---|

---

## 12. ECOLOGICAL INFORMATION

---

Not available.

---

## 13. DISPOSAL CONSIDERATIONS

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

---

HS Code : 960820

---

## 15. REGULATORY INFORMATION

---

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)

\ : Titanium dioxide / Ethyl alcohol / 2-Propanol / Ethylene glycol

EU labeling

F;R11

Ethyl alcohol

F;R11, Xi;R36

2-Propanol

25%<=Xn;R22

Ethylene glycol

CANADA Hazardous Products Act - Ingredient Disclosure List

0.1%over

Ethyl alcohol

1%over

2-Propanol / Ethylene glycol / Silica (amorphous)

Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Green [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010229A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.9g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)
- |  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
- Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |                    |
|-------|---|--------------------|
| OSHA  | 15mg/m3 TWA (Total dust)                | Titanium dioxide   |
|       | 15mg/m3 PEL (Nuisance Dust)             | Coloring agent     |
|       | 1000ppm TWA                             | Ethyl alcohol      |
| ACGIH | 10mg/m3 TWA                             | Titanium dioxide / |
|       | 100mg/m3 ceiling (particulate)(aerosol) | Coloring agent     |
|       | 1000ppm TWA                             | Ethylene glycol    |
| EC    | 6mg/m3                                  | Ethyl alcohol      |
|       | 52mg/m3(20ppm) TWA(skin),               | Titanium dioxide   |
|       | 104mg/m3(40ppm) STEL(skin)              | Ethylene glycol    |
|       | 1000ppm                                 | Ethyl alcohol      |

Personal protective equipment : Not required.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Green.
- Odor : Faint odor.
- pH : about 8.2
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]
- Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]
- Explosion limits : Not applicable.
- [ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ]
- Density : about 1.1 / 25 C
- Vapor density (air=1) : Not available. [Ethyl alcohol/ 1.59]

Solubility in water : Soluble.  
Evaporation rate : Not available.  
Volatile : 73-76%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
Hazardous reactions : Will not occur.  
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |

Hazardous decomposition products : (Information of components.)

|  |                               |
|--|-------------------------------|
| oxides of carbon, water  | common decomposition products |
| oxides of titanium.  | Titanium dioxide              |
| miscellaneous decomposition products.                              | Resin                         |
| cyanide, oxides of nitrogen, miscellaneous decomposition products. | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>≥5000mg/kg-Rat<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3450mg/kg-Mouse | Titanium dioxide<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat                                       | Titanium dioxide<br>Ethyl alcohol                                      |
| Skin LD50       | 9530uL/kg-Rabbit  | Ethylene glycol  |

Local effects                      Irritant:inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).   | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin<br>Coloring agent      |
| Skin contact     | irritation<br>irritation,dry   | Resin / Coloring agent<br>Ethylene glycol / Ethyl alcohol                          |
| Eye contact      | irritation,redness<br><br>irritation   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin / Coloring agent       |
| Ingestion        | physiologically inert,intestinal obstruction<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting | Titanium dioxide<br><br>Resin<br>Coloring agent / Ethylene glycol<br>Ethyl alcohol |
| Specific effects | IARC Group 2B  | Titanium dioxide   |

---

## 12. ECOLOGICAL INFORMATION

---

Not available.

---

## 13. DISPOSAL CONSIDERATIONS

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

---

HS Code : 960820

---

## 15. REGULATORY INFORMATION

---

### Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol / Ethyl alcohol

#### EU labeling

Xi;R43

Coloring agent

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

#### CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.



# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Light green [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281 Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010230A Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.1g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)
- |  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol             |
- Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |                    |
|-------|---|--------------------|
| OSHA  | 15mg/m3 TWA (Total dust)                | Titanium dioxide   |
|       | 1000ppm TWA                             | Ethyl alcohol      |
|       | 15mg/m3 PEL (Nuisance Dust)             | Coloring agent     |
|       | 400 ppm TWA, 500ppm STEL                | 2-Propanol         |
| ACGIH | 10mg/m3 TWA                             | Titanium dioxide / |
|       |   | Coloring agent     |
|       | 100mg/m3 ceiling (particulate)(aerosol) | Ethylene glycol    |
|       | 1000ppm TWA                             | Ethyl alcohol      |
| EC    | 200ppm TWA, 400ppm STEL                 | 2-Propanol         |
|       | 6mg/m3                                  | Titanium dioxide   |
|       | 52mg/m3(20ppm) TWA(skin),               | Ethylene glycol    |
|       | 104mg/m3(40ppm) STEL(skin)              |                    |
|       | 1000ppm                                 | Ethyl alcohol      |

Personal protective equipment : Not required.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Light green.
- Odor : Faint odor.
- pH : about 8.5
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [2-Propanol/ 11.7 C]
- Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]

Explosion limits : Not applicable.  
 [ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ]  
 Density : about 1.2 / 25 C  
 Vapor density (air=1) : Not available. [2-Propanol/ 2.07-2.10]  
 Solubility in water : Soluble.  
 Evaporation rate : Not available.  
 Volatile : 69-72%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
 Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol             |

Hazardous decomposition products : (Information of components.)

|  |                               |
|--|-------------------------------|
| oxides of carbon, water  | common decomposition products |
| oxides of titanium.  | Titanium dioxide              |
| miscellaneous decomposition products.                              | Resin                         |
| cyanide, oxides of nitrogen, miscellaneous decomposition products. | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

### Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>1650mg/kg-Cat,<br>4700mg/kg-Rat<br>3450mg/kg-Mouse<br>≥ 5000mg/kg-Rat<br>3600mg/kg-Mouse | Titanium dioxide<br>Ethylene glycol<br><br>Ethyl alcohol<br>Coloring agent<br>2-Propanol |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse                                      | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol  |
| Skin LD50       | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit   | Ethylene glycol<br>2-Propanol  |

|               |  |   |
|---------------|--|---|
| Local effects | Irritant;inhalation, skin, eye<br>Irritant;inhalation, eye | Ethylene glycol / Ethyl alcohol<br>2-Propanol |
|---------------|--|---|

**Chronic toxicity and long term toxicity**

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

Ethyl alcohol

The liquid defats the skin.

2-Propanol

**Signs and Symptoms of overexposure and aggravated by exposure**

|                  |   |  |
|------------------|---|--|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation<br>irritation,nausea  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin<br>Coloring agent<br>2-Propanol      |
| Skin contact     | irritation<br>irritation,dry<br>redness,swelling<br>irritation,absorption   | Resin<br>Ethylene glycol / Ethyl alcohol<br>Coloring agent<br>2-Propanol                         |
| Eye contact      | irritation,redness<br><br>irritation<br>irritation,pain   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin / Coloring agent<br>2-Propanol       |
| Ingestion        | physiologically inert,intestinal obstruction<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting<br>nausea,stomach pain | Titanium dioxide<br><br>Resin<br>Ethylene glycol / Coloring agent<br>Ethyl alcohol<br>2-Propanol |
| Specific effects | IARC Group 2B<br>IARC Group 3   | Titanium dioxide<br>2-Propanol   |

---

**12. ECOLOGICAL INFORMATION**

---

Not available.

---

**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

---

HS Code : 960820

---

## 15. REGULATORY INFORMATION

---

### Regulations (Information of components)

#### Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethylene glycol / Ethyl alcohol / 2-Propanol

#### EU labeling

25%≤Xn;R22

F;R11

Xi;R43

F;R11, Xi;R36

Ethylene glycol

Ethyl alcohol

Coloring agent

2-Propanol

#### CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

0.1%over

Ethylene glycol / 2-Propanol

Ethyl alcohol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Violet [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.  
Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN  
Telephone number : 03-3458-6281      Telefax number : 03-3450-0363  
Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001  
Revision Date : June 1, 2009  
File No. : 010231A      Rev. 2.5.07.04

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name          | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|-----------------------------------|------------|------------|------------|---------------------------|
| Water                             | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide                  | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                            | Registered | Registered | Registered | 10- 30                    |
| Ethylene glycol                   | 107-21-1   | Registered | 2034733    | < 10                      |
| Coloring agents                   | Registered | Registered | Registered | < 10                      |
| Polyoxyethylene nonylphenyl ether | 9016-45-9  | Registered | Registered | < 1                       |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Resin>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

## 4. FIRST-AID MEASURES

Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

**Skin contact:**

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

**Eye contact:**

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

**Ingestion:**

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

## 5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

**Extinguishing media:**

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

## 7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

**Handling:**

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

metals

Titanium dioxide

oxidizing materials

Resin / Coloring agent /

Polyoxyethylene nonylphenyl ether

oxidizing materials, bases, acids, reducing agents, metals

Ethylene glycol

Packaging materials : Not applicable.



## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |                                      |
|-------|---|--------------------------------------|
| OSHA  | 15mg/m3 TWA (Total dust)  | Titanium dioxide                     |
| ACGIH | 10mg/m3 TWA   | Titanium dioxide /<br>Coloring agent |
|       | 100mg/m3 ceiling (particulate)(aerosol)   | Ethylene glycol                      |
| EC    | 6mg/m3<br>52mg/m3(20ppm) EC MAK TWA(skin),<br>104mg/m3(40ppm) EC MAK STEL(skin) | Titanium dioxide<br>Ethylene glycol  |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.  
 Color : Violet.  
 Odor : Faint odor.  
 pH : about 8.3  
 Boiling point : Not available. [Water/ 100 C]  
 Melting point : <-10 C  
 Flash point : Not applicable. [Ethylene glycol/ 111 C(CC)]  
 Auto ignition temperature : Not applicable. [Ethylene glycol/ 398 C]  
 Explosion limits : Not applicable.  
     [ Lower flammable limit / 3.2% , Upper flammable limit / 15.3% <Ethylene glycol> ]  
 Density : about 1.1 / 25 C  
 Vapor density (air=1) : Not available. [Ethylene glycol/ 2.1]  
 Solubility in water : Soluble.  
 Evaporation rate : Not available.  
 Volatile : 72-75%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
                               Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |   |
|--|---|
| metals   | Titanium dioxide  |
| oxidizing materials  | Resin / Coloring agent /<br>Polyoxyethylene nonylphenyl ether |
| oxidizing materials, bases, acids, reducing agents, metals | Ethylene glycol   |

## Hazardous decomposition products : (Information of components.)

|  |                               |
|--|-------------------------------|
| oxides of carbon, water                        | common decomposition products |
| oxides of titanium.                            | Titanium dioxide              |
| oxides of nitrogen, cyanides, aldehydes,       | Resin                         |
| corrosive acrolein, various organic fragments, |                               |
| miscellaneous decomposition products.          |                               |
| miscellaneous decomposition products.          | Coloring agent                |

---

## 11.TOXICOLOGICAL INFORMATION

---

## (Information of components)

## Acute toxicity

|                 |                               |                                   |
|-----------------|-------------------------------|-----------------------------------|
| Ingestion LD50  | >24000mg/kg-Rat               | Titanium dioxide                  |
|                 | 1000mg/kg-Mouse               | Resin                             |
|                 | 1650mg/kg-Cat、                | Ethylene glycol                   |
|                 | 4700mg/kg-Rat                 |                                   |
|                 | 2950mg/kg-Mouse               | Coloring agent                    |
|                 | 1310mg/kg-Rat                 | Polyoxyethylene nonylphenyl ether |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat | Titanium dioxide                  |
| Skin LD50       | 9530uL/kg-Rabbit              | Ethylene glycol                   |
|                 | 2ml/kg-Rabbit                 | Polyoxyethylene nonylphenyl ether |

## Local effects

|                                |                                   |
|--------------------------------|-----------------------------------|
| Irritant;inhalation, skin, eye | Ethylene glycol                   |
| Irritant;eye                   | Polyoxyethylene nonylphenyl ether |

## Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus). | Ethylene glycol |
|--|-----------------|

## Signs and Symptoms of overexposure and aggravated by exposure

|              |  |  |
|--------------|--|--|
| Inhalation   | irritation,cough                             | Titanium dioxide / Resin<br>/ Ethylene glycol      |
|              | irritation                                   | Coloring agent / Polyoxyethylene nonylphenyl ether |
| Skin contact | mechanical abrasion,irritation               | Resin  |
|              | irritation,dry                               | Ethylene glycol                                    |
|              | burns,corrosive                              | Coloring agent                                     |
|              | irritation                                   | Polyoxyethylene nonylphenyl ether                  |
| Eye contact  | irritation,redness                           | Titanium dioxide / Ethylene                        |
|              | irritation                                   | Resin  |
|              | irritation,eye damage                        | Polyoxyethylene nonylphenyl ether                  |
| Ingestion    | physiologically inert,intestinal obstruction | Titanium dioxide                                   |
|              | digestive discomfort                         | Resin  |
|              | nausea,vomiting                              | Ethylene glycol / Coloring agent                   |
|              | digestive disorders,diarrhea                 | Polyoxyethylene nonylphenyl ether                  |
|              |  |  |

## Specific effects

|               |                  |
|---------------|------------------|
| IARC Group 2B | Titanium dioxide |
| IARC Group 3  | Resin            |

---

## 12. ECOLOGICAL INFORMATION

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Not available.

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## 13. DISPOSAL CONSIDERATIONS

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Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

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HS Code : 960820

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## 15. REGULATORY INFORMATION

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Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol

EU labeling

25%≤Xn;R22

Ethylene glycol

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

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## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (June 1, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Light orange [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010232A Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.2g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

|  |  |
|--|--|
| Storage condition                      | : Avoid direct sunlight.                               |
|  | : Do not leave the products in high temperature space. |
|  | : Recommended temperature: 0-30 C.                     |
| Incompatible products                  | : (Information of components.)                         |
| metals                                 | Titanium dioxide                                       |
| oxidizing materials                    | Resin / Coloring agent                                 |
| halo carbons, metals, metal salts,     | Ethyl alcohol  |
| oxidizing materials, halogens,         |  |
| peroxides, acids, metal oxides, bases, |  |
| combustible materials                  |  |
| oxidizing materials, bases, acids,     | Ethylene glycol  |
| reducing agents, metals                |  |
| acids, metals, oxidizing materials,    | 2-Propanol   |
| combustible materials, halogens,       |  |
| peroxides, bases, metal salts          |  |
| Packaging materials                    | : Not applicable.                                      |

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>1000ppm TWA<br>400 ppm TWA, 500ppm STEL                              | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol                    |
| ACGIH | 10mg/m3 TWA<br>1000ppm TWA<br>100mg/m3 ceiling (particulate)(aerosol)<br>200ppm TWA, 400ppm STEL | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol |
| EC    | 6mg/m3<br>1000ppm<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)                     | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol               |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

|                           |  |
|---------------------------|--|
| Physical state and form   | : Middle viscous liquid.   |
| Color                     | : Light orange.  |
| Odor                      | : Faint odor.  |
| pH                        | : about 8.1  |
| Boiling point             | : Not available. [Water/ 100 C]  |
| Melting point             | : <-10 C   |
| Flash point               | : Not applicable. [2-Propanol/ 11.7 C]   |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]                                       |
| Explosion limits          | : Not applicable.  |
|                           | [ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ] |
| Density                   | : about 1.2 / 25 C   |
| Vapor density (air=1)     | : Not available. [2-Propanol/ 2.07-2.10]                                       |
| Solubility in water       | : Soluble.   |

Evaporation rate : Not available.  
Volatile : 68-71%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
Hazardous reactions : Will not occur.  
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol             |

Hazardous decomposition products : (Information of components.)

|   |                               |
|---|-------------------------------|
| oxides of carbon, water   | common decomposition products |
| oxides of titanium.   | Titanium dioxide              |
| miscellaneous decomposition products.                                   | Resin                         |
| oxides of nitrogen, acid halides, miscellaneous decomposition products. | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                |   |  |
|----------------|---|--|
| Ingestion LD50 | >24000mg/kg-Rat<br>3450mg/kg-Mouse<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3600mg/kg-Mouse<br>>15000mg/kg-Rat | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br><br>2-Propanol<br>Coloring agent |
|                | Inhalation LC50   | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse                   |
| Skin LD50      | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit   | Ethylene glycol<br>2-Propanol  |

|               |  |   |
|---------------|--|---|
| Local effects | Irritant:inhalation, skin, eye<br>Irritant:inhalation, eye | Ethyl alcohol / Ethylene glycol<br>2-Propanol |
|---------------|--|---|

**Chronic toxicity and long term toxicity**

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

Ethyl alcohol

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

The liquid defats the skin.

2-Propanol

**Signs and Symptoms of overexposure and aggravated by exposure**

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation,nausea<br>irritation   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol<br>Coloring agent   |
| Skin contact     | irritation<br>irritation,dry<br>irritation,absorption<br>redness,swelling  | Resin<br>Ethyl alcohol / Ethylene glycol<br>2-Propanol<br>Coloring agent                         |
| Eye contact      | irritation,redness<br><br>irritation<br>irritation,pain  | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol                     |
| Ingestion        | physiologically inert,intestinal<br>obstruction<br>digestive discomfort<br>rash,vomiting<br>nausea,vomiting<br>nausea,stomach pain | Titanium dioxide<br><br>Resin<br>Ethyl alcohol<br>Ethylene glycol / Coloring agent<br>2-Propanol |
| Specific effects | IARC Group 2B<br>IARC Group 3  | Titanium dioxide<br>2-Propanol   |

---

**12. ECOLOGICAL INFORMATION**

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Not available.

---

**13. DISPOSAL CONSIDERATIONS**

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Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

---

HS Code : 960820



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## 15. REGULATORY INFORMATION

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### Regulations (Information of components)

#### Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethyl alcohol / Ethylene glycol / 2-Propanol

#### EU labeling

F;R11

Ethyl alcohol

25%≤Xn;R22

Ethylene glycol

F;R11, Xi;R36

2-Propanol

Xi;R43

Coloring agent

#### CANADA Hazardous Products Act - Ingredient Disclosure List

0.1%over

Ethyl alcohol

1%over

Ethylene glycol / 2-Propanol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Bright yellow [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010233A Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)
- |  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Coloring agent / Resin |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
- Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |  |
|-------|---|--|
| OSHA  | 15mg/m3 TWA (Total dust)  | Titanium dioxide<br>Coloring agent                                       |
|       | 5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust] |  |
|       | 1000ppm TWA   | Ethyl alcohol  |
|       |   |  |
| ACGIH | 10mg/m3 TWA   | Titanium dioxide /<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
|       | 100mg/m3 ceiling (particulate)(aerosol)                             |  |
|       | 1000ppm TWA   |  |
| EC    | 6mg/m3  | Titanium dioxide<br>Ethylene glycol                                      |
|       | 52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)             |  |
|       | 1000ppm   | Ethyl alcohol  |
|       |   |  |

Personal protective equipment : Not required.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Bright yellow.
- Odor : Faint odor.
- pH : about 8.3
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]
- Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]
- Explosion limits : Not applicable.  
[ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ]
- Density : about 1.1 / 25 C
- Vapor density (air=1) : Not available. [Ethyl alcohol/ 1.59]

Solubility in water : Soluble.  
Evaporation rate : Not available.  
Volatile : 76-80%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
Hazardous reactions : Will not occur.  
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Coloring agent / Resin |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |

Hazardous decomposition products : (Information of components.)

|   |                               |
|---|-------------------------------|
| oxides of carbon, water                                   | common decomposition products |
| oxides of titanium.                                       | Titanium dioxide              |
| oxides of nitrogen, miscellaneous decomposition products. | Coloring agent                |
| miscellaneous decomposition products.                     | Resin                         |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>≥5000mg/kg-Rat<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3450mg/kg-Mouse | Titanium dioxide<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat                                       | Titanium dioxide<br>Ethyl alcohol                                      |
| Skin LD50       | 9530uL/kg-Rabbit  | Ethylene glycol  |

Local effects                      Irritant:inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).   | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>irritation<br>headache,nausea  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Coloring agent<br>Resin      |
| Skin contact     | redness,swelling<br>irritation<br>irritation,dry   | Coloring agent<br>Resin<br>Ethylene glycol / Ethyl alcohol                         |
| Eye contact      | irritation,redness<br><br>irritation   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin                        |
| Ingestion        | physiologically inert,intestinal obstruction<br>nausea,vomiting<br>digestive discomfort<br>rash,vomiting | Titanium dioxide<br><br>Coloring agent / Ethylene glycol<br>Resin<br>Ethyl alcohol |
| Specific effects | IARC Group 2B  | Titanium dioxide   |

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**12. ECOLOGICAL INFORMATION**

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Not available.

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**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

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HS Code : 960820

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**15. REGULATORY INFORMATION**

---

## Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol / Ethyl alcohol

## EU labeling

Xi;R43

Coloring agent

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

## CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

## Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Yellow [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010234A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.



---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

|  |  |
|--|--|
| Storage condition                      | : Avoid direct sunlight.                               |
|  | : Do not leave the products in high temperature space. |
|  | : Recommended temperature: 0-30 C.                     |
| Incompatible products                  | : (Information of components.)                         |
| metals                                 | Titanium dioxide                                       |
| oxidizing materials                    | Coloring agent / Resin                                 |
| oxidizing materials, bases, acids,     | Ethylene glycol  |
| reducing agents, metals                |  |
| halo carbons, metals, metal salts,     | Ethyl alcohol  |
| oxidizing materials, halogens,         |  |
| peroxides, acids, metal oxides, bases, |  |
| Packaging materials                    | : Not applicable.                                      |

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust]<br>1000ppm TWA | Titanium dioxide<br>Coloring agent<br><br>Ethyl alcohol                  |
| ACGIH | 10mg/m3 TWA<br><br>100mg/m3 ceiling (particulate)(aerosol)<br>1000ppm TWA                                      | Titanium dioxide /<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
| EC    | 6mg/m3<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)<br>1000ppm                                   | Titanium dioxide<br>Ethylene glycol<br><br>Ethyl alcohol                 |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

|                           |  |
|---------------------------|--|
| Physical state and form   | : Middle viscous liquid.   |
| Color                     | : Yellow.  |
| Odor                      | : Faint odor.  |
| pH                        | : about 8.3  |
| Boiling point             | : Not available. [Water/ 100 C]  |
| Melting point             | : <-10 C   |
| Flash point               | : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]  |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]   |
| Explosion limits          | : Not applicable.<br>[ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ] |
| Density                   | : about 1.1 / 25 C   |
| Vapor density (air=1)     | : Not available. [Ethyl alcohol/ 1.59]   |
| Solubility in water       | : Soluble.   |
| Evaporation rate          | : Not available.   |
| Volatile                  | : 74-77%   |

## 10. STABILITY AND REACTIVITY

|  |   |
|--|---|
| Stability  | : Stability.  |
| Hazardous reactions  | : Will not occur.   |
| Conditions to avoid  | : Avoid heat, flames, sparks and other sources of ignition.<br>Avoid contact with incompatible materials. |
| Materials to avoid   | : (Information of components.)  |
| metals   | Titanium dioxide  |
| oxidizing materials  | Coloring agent / Resin  |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol   |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol   |
| Hazardous decomposition products   | : (Information of components.)  |
| oxides of carbon, water  | common decomposition products   |
| oxides of titanium.  | Titanium dioxide  |
| oxides of nitrogen, miscellaneous decomposition products.  | Coloring agent  |
| miscellaneous decomposition products.  | Resin   |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

### Acute toxicity

|                 |  |  |
|-----------------|--|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>≥ 5000mg/kg-Rat<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3450mg/kg-Mouse | Titanium dioxide<br>Coloring agent<br>Ethylene glycol<br><br>Ethyl alcohol |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat  | Titanium dioxide<br>Ethyl alcohol  |
| Skin LD50       | 9530uL/kg-Rabbit   | Ethylene glycol  |

Local effects                      Irritant;inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

### Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).   | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>irritation<br>headache,nausea  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Coloring agent<br>Resin      |
| Skin contact     | redness,swelling<br>irritation<br>irritation,dry   | Coloring agent<br>Resin<br>Ethylene glycol / Ethyl alcohol                         |
| Eye contact      | irritation,redness<br><br>irritation   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin                        |
| Ingestion        | physiologically inert,intestinal obstruction<br>nausea,vomiting<br>digestive discomfort<br>rash,vomiting | Titanium dioxide<br><br>Coloring agent / Ethylene glycol<br>Resin<br>Ethyl alcohol |
| Specific effects | IARC Group 2B  | Titanium dioxide   |

---

## 12. ECOLOGICAL INFORMATION

---

Not available.

---

## 13. DISPOSAL CONSIDERATIONS

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

---

HS Code : 960820

---

## 15. REGULATORY INFORMATION

---

### Regulations (Information of components)

#### Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethylene glycol / Ethyl alcohol

#### EU labeling

Xi;R43

Coloring agent

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

#### CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Orange [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010235A      Rev. 2.5.08.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)
- |  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
- Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |  |
|-------|---|--|
| OSHA  | 15mg/m3 TWA (Total dust)  | Titanium dioxide<br>Coloring agent                                       |
|       | 5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust] |  |
|       | 1000ppm TWA   | Ethyl alcohol  |
|       |   |  |
| ACGIH | 10mg/m3 TWA   | Titanium dioxide /<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
|       | 100mg/m3 ceiling (particulate)(aerosol)                             |  |
|       | 1000ppm TWA   |  |
| EC    | 6mg/m3  | Titanium dioxide<br>Ethylene glycol                                      |
|       | 52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)             |  |
|       | 1000ppm   | Ethyl alcohol  |
|       |   |  |

Personal protective equipment : Not required.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Orange.
- Odor : Faint odor.
- pH : about 8.3
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]
- Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]
- Explosion limits : Not applicable.
- [ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ]
- Density : about 1.1 / 25 C
- Vapor density (air=1) : Not available. [Ethyl alcohol/ 1.59]



Solubility in water : Soluble.  
Evaporation rate : Not available.  
Volatile : 73-76%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
Hazardous reactions : Will not occur.  
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |

Hazardous decomposition products : (Information of components.)

|                                       |                               |
|---------------------------------------|-------------------------------|
| oxides of carbon, water               | common decomposition products |
| oxides of titanium.                   | Titanium dioxide              |
| miscellaneous decomposition products. | Resin                         |
| oxides of nitrogen.                   | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |   |   |
|-----------------|---|---|
| Ingestion LD50  | >24000mg/kg-Rat<br>≥5000mg/kg-Rat<br>1650mg/kg-Cat,<br>4700mg/kg-Rat<br>3450mg/kg-Mouse | Titanium dioxide<br>Coloring agent<br>Ethylene glycol |
|                 |   | Ethyl alcohol   |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat                                       | Titanium dioxide<br>Ethyl alcohol                     |
| Skin LD50       | 9530uL/kg-Rabbit  | Ethylene glycol                                       |

Local effects                      Irritant; inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).   | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin<br>Coloring agent      |
| Skin contact     | irritation<br>redness,swelling of skin<br>irritation,dry   | Resin<br>Coloring agent<br>Ethylene glycol / Ethyl alcohol                         |
| Eye contact      | irritation,redness<br><br>irritation   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin                        |
| Ingestion        | physiologically inert,<br>intestinal obstruction<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting | Titanium dioxide<br><br>Resin<br>Coloring agent / Ethylene glycol<br>Ethyl alcohol |
| Specific effects | IARC Group 2B  | Titanium dioxide   |

---

**12. ECOLOGICAL INFORMATION**

---

Not available.

---

**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

---

HS Code : 960820

---

**15. REGULATORY INFORMATION**

---

## Regulations (Information of components)

## Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethylene glycol / Ethyl alcohol

## EU labeling

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

## CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

## Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Pink [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.  
Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN  
Telephone number : 03-3458-6281      Telefax number : 03-3450-0363  
Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001  
Revision Date : June 1, 2009  
File No. : 010236A      Rev. 2.5.07.04

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name          | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|-----------------------------------|------------|------------|------------|---------------------------|
| Water                             | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide                  | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                            | Registered | Registered | Registered | 10- 30                    |
| Ethylene glycol                   | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol                     | 64-17-5    | Registered | 2005786    | < 10                      |
| Coloring agents                   | Registered | Registered | Registered | < 10                      |
| Polyoxyethylene nonylphenyl ether | 9016-45-9  | Registered | Registered | < 1                       |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Resin>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.9g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

metals

oxidizing materials

oxidizing materials, bases, acids, reducing agents, metals

halo carbons, metals, metal salts, oxidizing materials,

halogens, peroxides, acids, metal oxides, bases,

combustible materials

Titanium dioxide

Resin / Coloring agent /

Polyoxyethylene nonylphenyl ether

Ethylene glycol

Ethyl alcohol

Packaging materials : Not applicable.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |                    |
|-------|---|--------------------|
| OSHA  | 15mg/m3 TWA                             | Titanium dioxide / |
|       | 1000ppm TWA                             | Coloring agent     |
| ACGIH | 10mg/m3 TWA                             | Ethyl alcohol      |
|       | 1000ppm TWA                             | Titanium dioxide / |
|       | 100mg/m3 ceiling (particulate)(aerosol) | Coloring agent     |
| EC    | 6mg/m3                                  | Ethyl alcohol      |
|       | 52mg/m3(20ppm) TWA(skin),               | Ethylene glycol    |
|       | 104mg/m3(40ppm) STEL(skin)              | Titanium dioxide   |
|       | 1000ppm                                 | Ethylene glycol    |
|       |   | Ethyl alcohol      |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.

Color : Pink.

Odor : Faint odor.

pH : about 8.0

Boiling point : Not available. [Water/ 100 C]

Melting point : <-10 C

Flash point : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]

Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]

Explosion limits : Not applicable.

[ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ]

Density : about 1.2 / 25 C

Vapor density (air=1) : Not available. [Ethyl alcohol/ 1.59]

Solubility in water : Soluble.

Evaporation rate : Not available.

Volatile : 68-71%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                                   |
|--|-----------------------------------|
| metals   | Titanium dioxide                  |
| oxidizing materials  | Resin / Coloring agent /          |
|  | Polyoxyethylene nonylphenyl ether |
| oxidizing materials, bases, acids, reducing agents, metals | Ethylene glycol                   |
| halo carbons, metals, metal salts, oxidizing materials,    | Ethyl alcohol                     |
| halogens, peroxides, acids, metal oxides, bases,           |                                   |
| combustible materials                                      |                                   |

Hazardous decomposition products : (Information of components.)

|  |                               |
|--|-------------------------------|
| oxides of carbon, water                        | common decomposition products |
| oxides of titanium.                            | Titanium dioxide              |
| oxides of nitrogen, cyanides, aldehydes,       | Resin                         |
| corrosive acrolein, various organic fragments, |                               |
| miscellaneous decomposition products.          |                               |
| oxides of nitrogen.                            | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |  |  |
|-----------------|--|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>1000mg/kg-Mouse<br>1650mg/kg-Cat,<br>4700mg/kg-Rat<br>3450mg/kg-Mouse<br>2950mg/kg-Mouse<br>1310mg/kg-Rat | Titanium dioxide<br>Resin<br>Ethylene glycol<br><br>Ethyl alcohol<br>Coloring agent<br>Polyoxyethylene nonylphenyl ether |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat  | Titanium dioxide<br>Ethyl alcohol  |
| Skin LD50       | 9530uL/kg-Rabbit<br>2ml/kg-Rabbit  | Ethylene glycol<br>Polyoxyethylene nonylphenyl ether   |

|               |  |  |
|---------------|--|--|
| Local effects | Irritant;inhalation, skin, eye<br>Irritant;eye | Ethylene glycol / Ethyl alcohol<br>Polyoxyethylene nonylphenyl ether |
|---------------|--|--|

Chronic toxicity and long term toxicity

|   |                 |
|---|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).  | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note. | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>irritation   | Titanium dioxide / Resin /<br>Ethylene glycol / Ethyl alcohol<br>Coloring agent / Polyoxyethylene<br>nonylphenyl ether |
| Skin contact     | mechanical abrasion,irritation<br>irritation,dry<br>redness,swelling of skin<br>irritation                                   | Resin<br>Ethylene glycol / Ethyl alcohol<br>Coloring agent<br>Polyoxyethylene nonylphenyl ether                        |
| Eye contact      | irritation,redness<br><br>irritation<br>irritation,eye damage  | Titanium dioxide / Ethylene<br>glycol / Ethyl alcohol<br>Resin<br>Polyoxyethylene nonylphenyl ether                    |
| Ingestion        | physiologically inert,intestinal<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting<br>digestive disorders,diarrhea | Titanium dioxide<br>Resin<br>Ethylene glycol / Coloring agent<br>Ethyl alcohol<br>Polyoxyethylene nonylphenyl ether    |
| Specific effects | IARC Group 2B<br>IARC Group 3  | Titanium dioxide<br>Resin  |

---

## 12. ECOLOGICAL INFORMATION

---

Not available.

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## 13. DISPOSAL CONSIDERATIONS

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Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

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HS Code : 960820

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## 15. REGULATORY INFORMATION

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### Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol / Ethyl alcohol

### EU labeling

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

### CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.



---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (June 1, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Light blue [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010237A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |
| Coloring agent           | Registered | Registered | Registered | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.2g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

|  |                        |
|--|------------------------|
| metals                                 | Titanium dioxide       |
| oxidizing materials                    | Resin / Coloring agent |
| halo carbons, metals, metal salts,     | Ethyl alcohol          |
| oxidizing materials, halogens,         |                        |
| peroxides, acids, metal oxides, bases, |                        |
| combustible materials                  |                        |
| oxidizing materials, bases, acids,     | Ethylene glycol        |
| reducing agents, metals                |                        |
| acids, metals, oxidizing materials,    | 2-Propanol             |
| combustible materials, halogens,       |                        |
| peroxides, bases, metal salts          |                        |

Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>1000ppm TWA<br>400 ppm TWA, 500ppm STEL<br>5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust] | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol<br>Coloring agent                      |
| ACGIH | 10mg/m3 TWA<br><br>1000ppm TWA<br>100mg/m3 ceiling (particulate)(aerosol)<br>200ppm TWA, 400ppm STEL                                       | Titanium dioxide /<br>Coloring agent<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol |
| EC    | 6mg/m3<br>1000ppm<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)   | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol                                   |

Personal protective equipment : Not required.

---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

Physical state and form : Middle viscous liquid.  
Color : Light blue.  
Odor : Faint odor.  
pH : about 8.4  
Boiling point : Not available. [Water/ 100 C]  
Melting point : <-10 C  
Flash point : Not applicable. [2-Propanol/ 11.7 C]  
Auto ignition temperature : Not applicable. [Ethyl alcohol/ 363 C]  
Explosion limits : Not applicable.  
[ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ]

|                       |  |
|-----------------------|--|
| Density               | : about 1.2 / 25 C                       |
| Vapor density (air=1) | : Not available. [2-Propanol/ 2.07-2.10] |
| Solubility in water   | : Soluble.                               |
| Evaporation rate      | : Not available.                         |
| Volatile              | : 69-72%                                 |

## 10. STABILITY AND REACTIVITY

|                     |   |
|---------------------|---|
| Stability           | : Stability.  |
| Hazardous reactions | : Will not occur.   |
| Conditions to avoid | : Avoid heat, flames, sparks and other sources of ignition.<br>Avoid contact with incompatible materials. |

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol             |

Hazardous decomposition products : (Information of components.)

|                                       |                               |
|---------------------------------------|-------------------------------|
| oxides of carbon, water               | common decomposition products |
| oxides of titanium.                   | Titanium dioxide              |
| miscellaneous decomposition products. | Resin                         |
| oxides of nitrogen.                   | Coloring agent                |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |  |  |
|-----------------|--|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>3450mg/kg-Mouse<br>1650mg/kg-Cat,<br>4700mg/kg-Rat<br>3600mg/kg-Mouse<br>>5000mg/kg-Rat | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br><br>2-Propanol<br>Coloring agent |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse                                     | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol  |
| Skin LD50       | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit  | Ethylene glycol<br>2-Propanol  |

|               |  |   |
|---------------|--|---|
| Local effects | Irritant:inhalation, skin, eye<br>Irritant:inhalation, eye | Ethyl alcohol / Ethylene glycol<br>2-Propanol |
|---------------|--|---|

**Chronic toxicity and long term toxicity**

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

Ethyl alcohol

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

The liquid defats the skin.

2-Propanol

**Signs and Symptoms of overexposure and aggravated by exposure**

|                  |  |   |
|------------------|--|---|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation,nausea<br>irritation   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol<br>Coloring agent    |
| Skin contact     | irritation<br>irritation,dry<br>irritation,absorption  | Resin<br>Ethyl alcohol / Ethylene glycol<br>2-Propanol  |
| Eye contact      | irritation,redness<br><br>irritation<br>irritation,pain  | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin / Coloring agent<br>2-Propanol     |
| Ingestion        | physiologically inert,intestinal<br>obstruction<br>digestive discomfort<br>rash,vomiting<br>nausea,vomiting<br>nausea,stomach pain<br>gastric disturbances | Titanium dioxide<br><br>Resin<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol<br>Coloring agent |
| Specific effects | IARC Group 2B<br>IARC Group 3  | Titanium dioxide<br>2-Propanol  |

---

**12. ECOLOGICAL INFORMATION**

---

Not available.

---

**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

---

HS Code : 960820

---

## 15. REGULATORY INFORMATION

---

### Regulations (Information of components)

#### Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethyl alcohol / Ethylene glycol / 2-Propanol

#### EU labeling

F;R11

Ethyl alcohol

25%≤Xn;R22

Ethylene glycol

F;R11, Xi;R36

2-Propanol

#### CANADA Hazardous Products Act - Ingredient Disclosure List

0.1%over

Ethyl alcohol

1%over

Ethylene glycol / 2-Propanol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Brown [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010238A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.



---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

|  |  |
|--|--|
| Storage condition                      | : Avoid direct sunlight.                               |
|  | : Do not leave the products in high temperature space. |
|  | : Recommended temperature: 0-30 C.                     |
| Incompatible products                  | : (Information of components.)                         |
| metals                                 | Titanium dioxide                                       |
| oxidizing materials                    | Resin / Coloring agent                                 |
| oxidizing materials, bases, acids,     | Ethylene glycol  |
| reducing agents, metals                |  |
| halo carbons, metals, metal salts,     | Ethyl alcohol  |
| oxidizing materials, halogens,         |  |
| peroxides, acids, metal oxides, bases, |  |
| combustible materials                  |  |
| Packaging materials                    | : Not applicable.                                      |

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>5mg/m3(Respirable fraction),<br>15mg/m3(Total dust) [Nuisance Dust]<br>1000ppm TWA | Titanium dioxide<br>Coloring agent<br><br>Ethyl alcohol                  |
| ACGIH | 10mg/m3 TWA<br><br>100mg/m3 ceiling (particulate)(aerosol)<br>1000ppm TWA                                      | Titanium dioxide /<br>Coloring agent<br>Ethylene glycol<br>Ethyl alcohol |
| EC    | 6mg/m3<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)<br>1000ppm                                   | Titanium dioxide<br>Ethylene glycol<br><br>Ethyl alcohol                 |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

|                           |   |
|---------------------------|---|
| Physical state and form   | : Middle viscous liquid.  |
| Color                     | : Brown.  |
| Odor                      | : Faint odor.   |
| pH                        | : about 8.3   |
| Boiling point             | : Not available. [Water/ 100 C]   |
| Melting point             | : <-10 C  |
| Flash point               | : Not applicable. [Ethyl alcohol/ 12.2 C(CC)]                                     |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]  |
| Explosion limits          | : Not applicable.   |
|                           | [ Lower flammable limit / 3.28% , Upper flammable limit / 19.0% <Ethyl alcohol> ] |
| Density                   | : about 1.1 / 25 C  |
| Vapor density (air=1)     | : Not available. [Ethyl alcohol/ 1.59]  |
| Solubility in water       | : Soluble.  |
| Evaporation rate          | : Not available.  |
| Volatile                  | : 74-77%  |

---

## 10. STABILITY AND REACTIVITY

---

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                        |
|--|------------------------|
| metals   | Titanium dioxide       |
| oxidizing materials  | Resin / Coloring agent |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol        |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol          |

Hazardous decomposition products : (Information of components.)

|   |                               |
|---|-------------------------------|
| oxides of carbon, water                                   | common decomposition products |
| oxides of titanium.                                       | Titanium dioxide              |
| miscellaneous decomposition products.                     | Resin                         |
| oxides of nitrogen, miscellaneous decomposition products. | Coloring agent                |

---

## 11. TOXICOLOGICAL INFORMATION

---

(Information of components)

Acute toxicity

|                 |                               |                  |
|-----------------|-------------------------------|------------------|
| Ingestion LD50  | >24000mg/kg-Rat               | Titanium dioxide |
|                 | >5000mg/kg-Rat                | Coloring agent   |
|                 | 1650mg/kg-Cat、                | Ethylene glycol  |
|                 | 4700mg/kg-Rat                 |                  |
|                 | 3450mg/kg-Mouse               | Ethyl alcohol    |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat | Titanium dioxide |
|                 | 20000ppm-10H-Rat              | Ethyl alcohol    |
| Skin LD50       | 9530uL/kg-Rabbit              | Ethylene glycol  |

Local effects                      Irritant:inhalation, skin, eye                      Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

|  |                 |
|--|-----------------|
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).   | Ethylene glycol |
| The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note | Ethyl alcohol   |

## Signs and Symptoms of overexposure and aggravated by exposure

|                  |  |  |
|------------------|--|--|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation  | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin<br>Coloring agent      |
| Skin contact     | irritation<br>redness,swelling<br>irritation,dry   | Resin<br>Coloring agent<br>Ethylene glycol / Ethyl alcohol                         |
| Eye contact      | irritation,redness<br><br>irritation   | Titanium dioxide / Ethylene glycol / Ethyl alcohol<br>Resin / Coloring agent       |
| Ingestion        | physiologically inert,intestinal obstruction<br>digestive discomfort<br>nausea,vomiting<br>rash,vomiting | Titanium dioxide<br><br>Resin<br>Coloring agent / Ethylene glycol<br>Ethyl alcohol |
| Specific effects | IARC Group 2B  | Titanium dioxide   |

---

**12. ECOLOGICAL INFORMATION**

---

Not available.

---

**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

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HS Code : 960820

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**15. REGULATORY INFORMATION**

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## Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Titanium dioxide / Ethylene glycol / Ethyl alcohol

## EU labeling

Xi;R43

Coloring agent

25%≤Xn;R22

Ethylene glycol

F;R11

Ethyl alcohol

## CANADA Hazardous Products Act - Ingredient Disclosure List

1%over

Ethylene glycol

0.1%over

Ethyl alcohol

## Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Gray [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010239A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |
| Carbon Black             | 1333-86-4  | Registered | 2156099    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Carbon Black>

MAJOR HEALTH HAZARDS: suspect cancer hazard (in animals)

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.3g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

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## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

**Storage:**

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

|  |                  |
|--|------------------|
| metals                                 | Titanium dioxide |
| oxidizing materials                    | Resin            |
| halo carbons, metals, metal salts,     | Ethyl alcohol    |
| oxidizing materials, halogens,         |                  |
| peroxides, acids, metal oxides, bases, |                  |
| combustible materials                  |                  |
| oxidizing materials, bases, acids,     | Ethylene glycol  |
| reducing agents, metals                |                  |
| acids, metals, oxidizing materials,    | 2-Propanol       |
| combustible materials, halogens,       |                  |
| peroxides, bases, metal salts          |                  |
| oxidizing materials, halogens          | Carbon Black     |

Packaging materials : Not applicable.

---

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

---

Engineering measures : Not required.

### Control parameters (Information of components.)

|       |   |                  |
|-------|---|------------------|
| OSHA  | 15mg/m3 TWA (Total dust)                | Titanium dioxide |
|       | 1000ppm TWA                             | Ethyl alcohol    |
|       | 400 ppm TWA, 500ppm STEL                | 2-Propanol       |
|       | 3.5mg/m3 TWA                            | Carbon Black     |
| ACGIH | 10mg/m3 TWA                             | Titanium dioxide |
|       | 1000ppm TWA                             | Ethyl alcohol    |
|       | 100mg/m3 ceiling (particulate)(aerosol) | Ethylene glycol  |
|       | 200ppm TWA, 400ppm STEL                 | 2-Propanol       |
|       | 3.5mg/m3 TWA                            | Carbon Black     |
| EC    | 6mg/m3                                  | Titanium dioxide |
|       | 1000ppm                                 | Ethyl alcohol    |
|       | 52mg/m3(20ppm) TWA(skin),               | Ethylene glycol  |
|       | 104mg/m3(40ppm) STEL(skin)              |                  |
|       | 3.5mg/m3 TWA                            | Carbon Black     |

Personal protective equipment : Not required.



---

## 9. PHYSICAL AND CHEMICAL PROPERTIES

---

[ ] : Information of components.

|                           |  |
|---------------------------|--|
| Physical state and form   | : Middle viscous liquid.   |
| Color                     | : Gray.  |
| Odor                      | : Faint odor.  |
| pH                        | : about 8.5  |
| Boiling point             | : Not available. [Water/ 100 C]  |
| Melting point             | : <-10 C   |
| Flash point               | : Not applicable. [2-Propanol/ 11.7 C]   |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]                                       |
| Explosion limits          | : Not applicable.  |
|                           | [ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ] |
| Density                   | : about 1.3 / 25 C   |
| Vapor density (air=1)     | : Not available. [2-Propanol/ 2.07-2.10]                                       |
| Solubility in water       | : Soluble.   |
| Evaporation rate          | : Not available.   |
| Volatile                  | : 65-68%   |

---

## 10. STABILITY AND REACTIVITY

---

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                  |
|--|------------------|
| metals   | Titanium dioxide |
| oxidizing materials  | Resin            |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol    |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol  |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal oxidizing materials, halogens     | 2-Propanol       |
|  | Carbon Black     |

Hazardous decomposition products : (Information of components.)

|                                       |                               |
|---------------------------------------|-------------------------------|
| oxides of carbon, water               | common decomposition products |
| oxides of titanium.                   | Titanium dioxide              |
| miscellaneous decomposition products. | Resin                         |
| sulfur compounds                      | Carbon Black                  |

## 11.TOXICOLOGICAL INFORMATION

### (Information of components)

#### Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>3450mg/kg-Mouse<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3600mg/kg-Mouse<br>>10000mg/kg-Rat | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br><br>2-Propanol<br>Carbon Black |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse                                      | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol  |
| Skin LD50       | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit<br>>3000mg/kg-Rabbit  | Ethylene glycol<br>2-Propanol<br>Carbon Black  |

#### Local effects

|                                |                                 |
|--------------------------------|---------------------------------|
| Irritant;inhalation, skin, eye | Ethyl alcohol / Ethylene glycol |
| Irritant;inhalation, eye       | 2-Propanol                      |
| Irritant;inhalation, skin      | Carbon Black                    |

#### Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

Ethyl alcohol

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

The liquid defats the skin.

2-Propanol

Lungs may be affected by repeated or prolonged exposure at very high concentrations. Respiratory disorders.

Carbon Black

#### Signs and Symptoms of overexposure and aggravated by exposure

|              |  |  |
|--------------|--|--|
| Inhalation   | irritation,cough<br><br>headache,nausea<br>irritation,nausea<br>irritation   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol<br>Carbon Black |
| Skin contact | irritation<br>irritation,dry<br>irritation,absorption  | Resin / Carbon Black<br>Ethyl alcohol / Ethylene glycol<br>2-Propanol                        |
| Eye contact  | irritation,redness<br><br>irritation<br>irritation,pain<br>mechanical<br>irritation,discoloration of lids                          | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol<br>Carbon Black |
| Ingestion    | physiologically inert,intestinal<br>obstruction<br>digestive discomfort<br>rash,vomiting<br>nausea,vomiting<br>nausea,stomach pain | Titanium dioxide<br><br>Resin<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol              |

Specific effects

IARC Group 2B  
IARC Group 3Titanium dioxide / Carbon Black  
2-Propanol

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## 12. ECOLOGICAL INFORMATION

---

Not available.

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## 13. DISPOSAL CONSIDERATIONS

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

## 14. TRANSPORT INFORMATION

---

HS Code : 960820

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## 15. REGULATORY INFORMATION

---

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethyl alcohol / Ethylene glycol / 2-Propanol / Carbon Black

EU labeling

F;R11

Ethyl alcohol

25%≤Xn;R22

Ethylene glycol

F;R11, Xi;R36

2-Propanol

CANADA Hazardous Products Act - Ingredient Disclosure List

0.1%over

Ethyl alcohol

1%over

Ethylene glycol / 2-Propanol / Carbon Black

Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M White [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010240A      Rev. 2.5.07.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Titanium dioxide         | 13463-67-7 | Registered | 2366755    | 10- 30                    |
| Resins                   | Registered | Registered | Registered | < 10                      |
| Ethyl alcohol            | 64-17-5    | Registered | 2005786    | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| 2-Propanol               | 67-63-0    | Registered | 2006617    | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethyl alcohol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

<2-Propanol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, eye irritation, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 4.3g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

|  |  |
|--|--|
| Storage condition                      | : Avoid direct sunlight.                               |
|  | : Do not leave the products in high temperature space. |
|  | : Recommended temperature: 0-30 C.                     |
| Incompatible products                  | : (Information of components.)                         |
| metals                                 | Titanium dioxide                                       |
| oxidizing materials                    | Resin  |
| halo carbons, metals, metal salts,     | Ethyl alcohol  |
| oxidizing materials, halogens,         |  |
| peroxides, acids, metal oxides, bases, |  |
| combustible materials                  |  |
| oxidizing materials, bases, acids,     | Ethylene glycol  |
| reducing agents, metals                |  |
| acids, metals, oxidizing materials,    | 2-Propanol   |
| combustible materials, halogens,       |  |
| peroxides, bases, metal salts          |  |
| Packaging materials                    | : Not applicable.                                      |

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |  |  |
|-------|--|--|
| OSHA  | 15mg/m3 TWA (Total dust)<br>1000ppm TWA<br>400 ppm TWA, 500ppm STEL                              | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol                    |
| ACGIH | 10mg/m3 TWA<br>1000ppm TWA<br>100mg/m3 ceiling (particulate)(aerosol)<br>200ppm TWA, 400ppm STEL | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol |
| EC    | 6mg/m3<br>1000ppm<br>52mg/m3(20ppm) TWA(skin),<br>104mg/m3(40ppm) STEL(skin)                     | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol               |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

|                           |  |
|---------------------------|--|
| Physical state and form   | : Middle viscous liquid.   |
| Color                     | : White.   |
| Odor                      | : Faint odor.  |
| pH                        | : about 8.1  |
| Boiling point             | : Not available. [Water/ 100 C]  |
| Melting point             | : <-10 C   |
| Flash point               | : Not applicable. [2-Propanol/ 11.7 C]   |
| Auto ignition temperature | : Not applicable. [Ethyl alcohol/ 363 C]                                       |
| Explosion limits          | : Not applicable.  |
|                           | [ Lower flammable limit / 2.0% , Upper flammable limit / 12.7 % <2-Propanol> ] |
| Density                   | : about 1.3 / 25 C   |
| Vapor density (air=1)     | : Not available. [2-Propanol/ 2.07-2.10]                                       |
| Solubility in water       | : Soluble.   |

Evaporation rate : Not available.  
Volatile : 65-68%

## 10. STABILITY AND REACTIVITY

Stability : Stability.  
Hazardous reactions : Will not occur.  
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|  |                  |
|--|------------------|
| metals   | Titanium dioxide |
| oxidizing materials  | Resin            |
| halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials | Ethyl alcohol    |
| oxidizing materials, bases, acids, reducing agents, metals   | Ethylene glycol  |
| acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts                             | 2-Propanol       |

Hazardous decomposition products : (Information of components.)

|                                       |                               |
|---------------------------------------|-------------------------------|
| oxides of carbon, water               | common decomposition products |
| oxides of titanium.                   | Titanium dioxide              |
| miscellaneous decomposition products. | Resin                         |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |  |  |
|-----------------|--|--|
| Ingestion LD50  | >24000mg/kg-Rat<br>3450mg/kg-Mouse<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>3600mg/kg-Mouse | Titanium dioxide<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol |
| Inhalation LC50 | 6820mg/m <sup>3</sup> -4H-Rat<br>20000ppm-10H-Rat<br>11100ppm-4H-Mouse                   | Titanium dioxide<br>Ethyl alcohol<br>2-Propanol                    |
| Skin LD50       | 9530uL/kg-Rabbit<br>12800mg/kg-Rabbit  | Ethylene glycol<br>2-Propanol                                      |

|               |  |   |
|---------------|--|---|
| Local effects | Irritant;inhalation, skin, eye<br>Irritant;inhalation, eye | Ethyl alcohol / Ethylene glycol<br>2-Propanol |
|---------------|--|---|

**Chronic toxicity and long term toxicity**

The liquid defats the skin. The substance may have effects on the upper respiratory tract and central nervous system, resulting in irritation, headache, fatigue and lack of concentration. See Note

Ethyl alcohol

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

Ethylene glycol

The liquid defats the skin.

2-Propanol

**Signs and Symptoms of overexposure and aggravated by exposure**

|                  |  |   |
|------------------|--|---|
| Inhalation       | irritation,cough<br><br>headache,nausea<br>irritation,nausea   | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol    |
| Skin contact     | irritation<br>irritation,dry<br>irritation,absorption  | Resin<br>Ethyl alcohol / Ethylene glycol<br>2-Propanol                          |
| Eye contact      | irritation,redness<br><br>irritation<br>irritation,pain  | Titanium dioxide / Ethyl alcohol /<br>Ethylene glycol<br>Resin<br>2-Propanol    |
| Ingestion        | physiologically inert,intestinal<br>obstruction<br>digestive discomfort<br>rash,vomiting<br>nausea,vomiting<br>nausea,stomach pain | Titanium dioxide<br><br>Resin<br>Ethyl alcohol<br>Ethylene glycol<br>2-Propanol |
| Specific effects | IARC Group 2B<br>IARC Group 3  | Titanium dioxide<br>2-Propanol  |

---

**12. ECOLOGICAL INFORMATION**

---

Not available.

---

**13. DISPOSAL CONSIDERATIONS**

---

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

---

**14. TRANSPORT INFORMATION**

---

HS Code : 960820



---

## 15. REGULATORY INFORMATION

---

### Regulations (Information of components)

#### Hazardous chemicals (OSHA HCS)

: Titanium dioxide / Ethyl alcohol / Ethylene glycol / 2-Propanol

#### EU labeling

F;R11

Ethyl alcohol

25%≤Xn;R22

Ethylene glycol

F;R11, Xi;R36

2-Propanol

#### CANADA Hazardous Products Act - Ingredient Disclosure List

0.1%over

Ethyl alcohol

1%over

Ethylene glycol / 2-Propanol

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

---

## 16. OTHER INFORMATION

---

This sheet completes the technical sheet of use but it doesn't replace it.

The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

Moreover the attention of the users is drawn on the risks possibly taken, when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Gold [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010241A      Rev. 2.5.04.04

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Resin                    | Registered | Registered | Polymer    | 10- 30                    |
| Aluminum paste           | 7429-90-5  | Registered | 2310723    | < 10                      |
| Coloring agents          | Registered | Registered | Registered | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Additive                 | Registered | Registered | Registered | < 10                      |
| Petroleum solvents       | Registered | Registered | Registered | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Aluminum paste>

MAJOR HEALTH HAZARDS: Causes respiratory tract irritation. May be irritating to skin and eyes. May cause convulsions.

PHYSICAL HAZARDS: Extremely flammable. May catch fire if exposed to air. May form flammable or explosive dust-air mixtures. May react with water.

<Coloring agent>

PHYSICAL HAZARDS: Dust/air mixtures may ignite or explode.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage

---

## 4. FIRST-AID MEASURES

---

### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.7g]

---

## 5. FIRE-FIGHTING MEASURES

---

Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

---

## 6. ACCIDENTAL RELEASE MEASURES

---

Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

---

## 7. HANDLING AND STORAGE

---

Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.

: Recap after use.

: Keep out of the reach of children.

: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

## Storage:

- Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
- Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.
- Incompatible products : (Information of components.)  
acids, combustible materials, oxidizing Aluminum paste  
oxidizing materials Coloring agent / Petroleum solvents  
oxidizing materials, bases, acids, Ethylene glycol  
reducing agents, metals  
strong oxidizers Additive
- Packaging materials : Not applicable.

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

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Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |   |
|-------|---|---|
| OSHA  | 15mg/m3(total dust),                    | Aluminum paste  |
|       | 5mg/m3(respirable fraction)             |   |
|       | 15mg/m3 PEL (Nuisance Dust)             |   |
|       | 500ppm                                  |   |
| ACGIH | 10mg/m3 TWA (metal particulate)         | Aluminum paste<br>Coloring agent<br>Ethylene glycol<br>Petroleum solvents |
|       | 10mg/m3 TWA(Nuisance Dust)              |   |
|       | 100mg/m3 ceiling (particulate)(aerosol) |   |
|       | 100ppm                                  |   |
| EC    | 52mg/m3(20ppm) TWA(skin),               | Ethylene glycol   |
|       | 104mg/m3(40ppm) STEL(skin)              |   |

Personal protective equipment : Not required.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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[ ] : Information of components.

- Physical state and form : Middle viscous liquid.
- Color : Gold.
- Odor : Faint odor.
- pH : about 8.2
- Boiling point : Not available. [Water/ 100 C]
- Melting point : <-10 C
- Flash point : Not applicable. [Petroleum solvents/ 40 C]
- Auto ignition temperature : Not applicable. [Petroleum solvents/ 245 C]
- Explosion limits : Not applicable.  
[ Lower flammable limit / 1% , Upper flammable limit / 7% <Petroleum solvents> ]
- Density : about 1.1 / 25 C
- Vapor density (air=1) : Not available. [Petroleum solvents/ 5.3]
- Solubility in water : Soluble.

Evaporation rate : Not available.  
Volatile : 70-73%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

|   |                                     |
|---|-------------------------------------|
| acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides | Aluminum paste                      |
| oxidizing materials   | Coloring agent / Petroleum solvents |
| oxidizing materials, bases, acids, reducing agents, metals  | Ethylene glycol                     |
| strong oxidizers  | Additive                            |

Hazardous decomposition products : (Information of components.)

|  |                               |
|--|-------------------------------|
| oxides of carbon, water                | common decomposition products |
| hydrocarbon gases, oxides of aluminum. | Aluminum paste                |
| oxides of nitrogen, acid halides.      | Coloring agent                |
| various organic fragments.             | Petroleum solvents            |

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |   |  |
|-----------------|---|--|
| Ingestion LD50  | >5000mg/kg-Rat<br>1650mg/kg-Cat、<br>4700mg/kg-Rat<br>>2000mg/kg-Rat<br>28000mg/kg-Rat | Aluminum paste / Coloring agent<br>Ethylene glycol<br><br>Additive<br>Petroleum solvents |
| Inhalation LC50 | Not available.  |  |
| Skin LD50       | 9530uL/kg-Rabbit<br>>2000mg/kg-Rabbit<br>28000mg/kg-Rabbit                            | Ethylene glycol<br>Additive<br>Petroleum solvents  |

|               |   |                                   |
|---------------|---|-----------------------------------|
| Local effects | Irritant:inhalation<br>Irritant:inhalation, skin, eye | Aluminum paste<br>Ethylene glycol |
|---------------|---|-----------------------------------|

Chronic toxicity and long term toxicity

|   |                 |
|---|-----------------|
| Lungs may be affected by repeated or prolonged exposure to dust particles. The substance may have effects on the nervous system, resulting in impaired functions. | Aluminum paste  |
| The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).  | Ethylene glycol |

## Signs and Symptoms of overexposure and aggravated by exposure

|              |  |   |
|--------------|--|---|
| Inhalation   | irritation,cough<br>irritation<br>irritation,nausea  | Aluminum paste / Ethylene glycol<br>Coloring agent<br>Petroleum solvents              |
| Skin contact | irritation,itching<br>allergic contact dermatitis<br>irritation,dry<br>irritation<br>irritation,headache | Aluminum paste<br>Coloring agent<br>Ethylene glycol<br>Additive<br>Petroleum solvents |
| Eye contact  | irritation,eye damage<br>irritation,redness<br>irritation  | Aluminum paste<br>Ethylene glycol<br>Additive   |
| Ingestion    | irritation,digestive disorders<br>nausea,vomiting<br>irritation,nausea                                   | Aluminum paste<br>Coloring agent / Ethylene glycol<br>Petroleum solvents              |

Specific effects                      Not available.

## 12. ECOLOGICAL INFORMATION

Not available.

## 13. DISPOSAL CONSIDERATIONS

Waste from residues            : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

## 14. TRANSPORT INFORMATION

HS Code                                : 960820

## 15. REGULATORY INFORMATION

### Regulations (Information of components)

Hazardous chemicals (OSHA HCS)            : Aluminum paste / Ethylene glycol

#### EU labeling

|            |                    |
|------------|--------------------|
| F;R15-17   | Aluminum paste     |
| 25%≤Xn;R22 | Ethylene glycol    |
| 10%≤Xn;R65 | Petroleum solvents |

#### CANADA Hazardous Products Act - Ingredient Disclosure List

|        |                                  |
|--------|----------------------------------|
| 1%over | Aluminum paste / Ethylene glycol |
|--------|----------------------------------|

### Hazard and safety information

Products are manufactured in accordance with European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

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## 16. OTHER INFORMATION

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This sheet completes the technical sheet of use but it doesn't replace it.  
The information contained in this sheet are based knowledge of the products  
at the data : (March 18, 2009). They are given quite sincerely.  
Moreover the attention of the users is drawn on the risks possibly taken,  
when a product is used for other utilization than these which it is intended.

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-3M Silver [ POSCA ]

Manufacture's name : MITSUBISHI PENCIL CO.,LTD.

Address : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN

Telephone number : 03-3458-6281      Telefax number : 03-3450-0363

Telex number : 2422337 MBPENC J.

Creation Date : August 24, 2001

Revision Date : March 18, 2009

File No. : 010242A      Rev. 2.5.03.03

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:

Component parts : Ink

| Chemical or generic name | CAS No.    | TSCA       | EINECS No. | Concentration range (wt%) |
|--------------------------|------------|------------|------------|---------------------------|
| Water                    | 7732-18-5  | Registered | 2317912    | 50- 80                    |
| Aluminum paste           | 7429-90-5  | Registered | 2310723    | 10- 30                    |
| Resin                    | Registered | Registered | Polymer    | < 10                      |
| Ethylene glycol          | 107-21-1   | Registered | 2034733    | < 10                      |
| Petroleum solvents       | Registered | Registered | Registered | < 10                      |
| Additive                 | Registered | Registered | Registered | < 10                      |

Other parts : Other parts are excluded from 'chemical substances'.

## 3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Aluminum paste>

MAJOR HEALTH HAZARDS: Causes respiratory tract irritation. May be irritating to skin and eyes. May cause convulsions.

PHYSICAL HAZARDS: Extremely flammable. May catch fire if exposed to air. May form flammable or explosive dust-air mixtures. May react with water.

<Ethylene glycol>

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, central nervous system depression, nerve damage, kidney damage



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## 4. FIRST-AID MEASURES

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### Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

### Skin contact:

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

### Eye contact:

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

### Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.

[Ink quantity of product : about 3.6g]

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## 5. FIRE-FIGHTING MEASURES

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Fire and explosion measures : Slight fire hazard.

### Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.

Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Products is no flammable.

Use extinguishing agents appropriate for surrounding fire.

Avoid inhalation of material or combustion by-products.

Stay upwind and keep out of low areas.

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## 6. ACCIDENTAL RELEASE MEASURES

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Personal precautions : Not available.

Environmental precautions : Do not wash away into shower or water way.

Methods for cleaning up : Wipe off by dry cloth and wash with water.

: In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

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Store and handle in accordance with all current regulations and standards.

Keep separated from incompatible substances.

### Handling:

Technical measures : Don't swallow ink.  
: Recap after use.  
: Keep out of the reach of children.  
: Avoid contact with skin and eyes.

Precautions : Not available.

Safe handling advice : Not available.

### Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.

Storage condition : Avoid direct sunlight.  
: Do not leave the products in high temperature space.  
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

|   |                    |
|---|--------------------|
| acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal oxidizing materials, bases, acids, reducing agents, metals | Aluminum paste     |
| oxidizing materials   | Ethylene glycol    |
| strong oxidizers  | Petroleum solvents |
|   | Additive           |

Packaging materials : Not applicable.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

|       |   |                    |
|-------|---|--------------------|
| OSHA  | 15mg/m3(total dust),                    | Aluminum paste     |
|       | 5mg/m3(respirable fraction)             |                    |
|       | 500ppm                                  | Petroleum solvents |
| ACGIH | 10mg/m3 TWA (metal particulate)         | Aluminum paste     |
|       | 100mg/m3 ceiling (particulate)(aerosol) | Ethylene glycol    |
|       | 100ppm                                  | Petroleum solvents |
| EC    | 52mg/m3(20ppm) TWA(skin),               | Ethylene glycol    |
|       | 104mg/m3(40ppm) STEL(skin)              |                    |

Personal protective equipment : Not required.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.  
Color : Silver.  
Odor : Faint odor.  
pH : about 8.6  
Boiling point : Not available. [Water/ 100 C]  
Melting point : <-10 C  
Flash point : Not applicable. [Petroleum solvents/ 40 C]  
Auto ignition temperature : Not applicable. [Petroleum solvents/ 245 C]  
Explosion limits : Not applicable.  
[ Lower flammable limit / 1% , Upper flammable limit / 7% <Petroleum solvents> ]  
Density : about 1.1 / 25 C  
Vapor density (air=1) : Not available. [Petroleum solvents/ 5.3]  
Solubility in water : Soluble.  
Evaporation rate : Not available.  
Volatile : 74-77%

## 10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition.  
Avoid contact with incompatible materials.

Materials to avoid : (Information of components.)

acids, combustible materials, oxidizing Aluminum paste

materials, metals, metal salts, bases, metal

oxides, halogens, reducing agents, halo

carbons, peroxides, metal carbides

oxidizing materials, bases, acids, reducing Ethylene glycol

agents, metals

oxidizing materials Petroleum solvents

strong oxidizers Additive

Hazardous decomposition products : (Information of components.)

oxides of carbon, water common decomposition products

hydrocarbon gases, oxides of aluminum. Aluminum paste

various organic fragments. Petroleum solvents

## 11. TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

|                 |   |                                       |
|-----------------|---|---------------------------------------|
| Ingestion LD50  | >5000mg/kg-Rat                                    | Aluminum paste                        |
|                 | 1650mg/kg-Cat、<br>4700mg/kg-Rat<br>28000mg/kg-Rat | Ethylene glycol<br>Petroleum solvents |
| Inhalation LC50 | Not available.                                    |                                       |
| Skin LD50       | 9530uL/kg-Rabbit                                  | Ethylene glycol                       |
|                 | 28000mg/kg-Rabbit                                 | Petroleum solvents                    |

Local effects                      Irritant;inhalation                      Aluminum paste  
   Irritant;inhalation, skin, eye                      Ethylene glycol

Chronic toxicity and long term toxicity

Lungs may be affected by repeated or prolonged exposure to                      Aluminum paste  
dust particles. The substance may have effects on the nervous  
system, resulting in impaired functions.

The substance may have effects on the central nervous                      Ethylene glycol  
system, resulting in abnormal eye movements (nystagmus).

Signs and Symptoms of overexposure and aggravated by exposure

|              |                                       |  |
|--------------|---------------------------------------|--|
| Inhalation   | irritation,cough<br>irritation,nausea | Aluminum paste / Ethylene glycol<br>Petroleum solvents |
| Skin contact | irritation,itching                    | Aluminum paste   |
|              | irritation,dry                        | Ethylene glycol  |
|              | irritation,headache                   | Petroleum solvents                                     |
|              | irritation                            | Additive   |

|                  |  |   |
|------------------|--|---|
| Eye contact      | irritation,eye damage<br>irritation,redness<br>irritation              | Aluminum paste<br>Ethylene glycol<br>Additive           |
| Ingestion        | irritation,digestive disorders<br>nausea,vomiting<br>irritation,nausea | Aluminum paste<br>Ethylene glycol<br>Petroleum solvents |
| Specific effects | Not available.   |   |

## 12. ECOLOGICAL INFORMATION

Not available.

## 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards.

Contaminated packaging : Not applicable.

## 14. TRANSPORT INFORMATION

HS Code : 960820

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The information contained in this sheet are based knowledge of the products at the data : (March 18, 2009). They are given quite sincerely.

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