

# Safety data sheet for chemical products

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-5M Black [ POSCA ]

Manufacturer'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. : 010243A 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			
	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 7.2g]

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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 Product 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,	Ethylene glycol
reducing agents, metals	
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	
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	3.5mg/m <sup>3</sup> TWA 1000ppm TWA 400 ppm TWA, 500ppm STEL	Carbon Black Ethyl alcohol 2-Propanol
ACGIH	3.5mg/m <sup>3</sup> TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA 200ppm TWA, 400ppm STEL	Carbon Black Ethylene glycol Ethyl alcohol 2-Propanol
EC	3.5mg/m <sup>3</sup> TWA 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Carbon Black Ethylene glycol 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	: 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%

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## 10. STABILITY AND REACTIVITY

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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

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## 11. TOXICOLOGICAL INFORMATION

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(Information of components)

Acute toxicity

Ingestion LD50	>10000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse 3600mg/kg-Mouse	Carbon Black Ethylene glycol  Ethyl alcohol 2-Propanol
Inhalation LC50	20000ppm-10H-Rat 11100ppm-4H-Mouse	Ethyl alcohol 2-Propanol
Skin LD50	>3000mg/kg-Rabbit 9530uL/kg-Rabbit 12800mg/kg-Rabbit	Carbon Black Ethylene glycol 2-Propanol
Local effects	Irritant;inhalation, skin Irritant;inhalation, skin, eye Irritant;inhalation, eye	Carbon Black Ethylene glycol / Ethyl alcohol 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 irritation, cough irritation, nausea	Carbon Black / Resin Ethylene glycol / Ethyl alcohol 2-Propanol
Skin contact	irritation irritation, dry irritation, absorption	Carbon Black / Resin Ethylene glycol / Ethyl alcohol 2-Propanol
Eye contact	mechanical irritation, discoloration of lids irritation irritation, redness irritation, pain	Carbon Black Resin Ethylene glycol / Ethyl alcohol 2-Propanol
Ingestion	nausea, vomiting rash, vomiting nausea, stomach pain	Ethylene glycol Ethyl alcohol 2-Propanol
Specific effects	IARC Group 2B IARC Group 3	Carbon Black 2-Propanol

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## 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.

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## 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)

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

## EU labeling

25%<=Xn;R22	Ethylene glycol
F;R11	Ethyl alcohol
F;R11, Xi;R36	2-Propanol

## CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Carbon Black / Ethylene glycol / 2-Propanol
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.

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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-5M Red [ POSCA ]

Manufacturer'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. : 010244A 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			
	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 7.5g]

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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 Product 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.	
Incompatible products	: Recommended temperature: 0-30 C. : (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/m <sup>3</sup> TWA (Total dust) 1000ppm TWA	Titanium dioxide Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol 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%

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## 10. STABILITY AND REACTIVITY

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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

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## 11. TOXICOLOGICAL INFORMATION

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(Information of components)

Acute toxicity

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

Local effects	Irritant;inhalation, skin, eye	Ethylene glycol / Ethyl alcohol
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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  irritation headache,nausea	Titanium dioxide / Ethylene glycol / Ethyl alcohol Coloring agent Resin
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Skin contact	redness,swelling of skin irritation irritation,dry	Coloring agent Resin Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol Resin
Ingestion	physiologically inert, intestinal obstruction nausea,vomiting digestive discomfort nausea,vomiting rash,vomiting	Titanium dioxide Coloring agent Resin Ethylene glycol 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-5M Blue [ POSCA ]

Manufacturer'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. : 010245A 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			
	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 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 8.2g]

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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 Product 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	<ul style="list-style-type: none"> <li>: Avoid direct sunlight.</li> <li>: Do not leave the products in high temperature space.</li> <li>: Recommended temperature: 0-30 C.</li> </ul>
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.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m <sup>3</sup> TWA (Total dust) 1000ppm TWA 400 ppm TWA, 500ppm STEL 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust] 5mg/m <sup>3</sup> (as Mo), 1mg/m <sup>3</sup> (as W) [Soluble compounds] 20mppcf TWA (<1% crystalline silica)	Titanium dioxide Ethyl alcohol 2-Propanol Coloring agent  Silica (amorphous)
ACGIH	10mg/m <sup>3</sup> TWA  1000ppm TWA 200ppm TWA, 400ppm STEL 5mg/m <sup>3</sup> (as Mo), 1mg/m <sup>3</sup> (as W) [Soluble compounds]  100mg/m <sup>3</sup> ceiling (particulate)(aerosol)	Titanium dioxide / Coloring agent Ethyl alcohol 2-Propanol Coloring agent  Ethylene glycol
EC	6mg/m <sup>3</sup> 1000ppm 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin)	Titanium dioxide Ethyl alcohol Ethylene glycol

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	: 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	: 63-66%

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## 10. STABILITY AND REACTIVITY

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

Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye	Ethyl alcohol / Ethylene glycol 2-Propanol
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### 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.  
The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).

2-Propanol

Ethylene glycol

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

Inhalation	irritation,cough  irritation irritation,nausea	Titanium dioxide / Ethyl alcohol / Ethylene glycol / Silica Resin / Coloring agent 2-Propanol
Skin contact	irritation irritation,dry  irritation,absorption	Resin Ethyl alcohol / Ethylene glycol / Silica (amorphous) 2-Propanol
Eye contact	irritation,redness  irritation irritation,pain	Titanium dioxide / Ethyl alcohol / Ethylene glycol / Silica Resin / Coloring agent 2-Propanol
Ingestion	physiologically inert, intestinal obstruction rash,vomiting nausea,stomach pain gastric disturbances nausea,vomiting	Titanium dioxide  Ethyl alcohol 2-Propanol Coloring agent Ethylene glycol
Specific effects	IARC Group 2B IARC Group 3	Titanium dioxide 2-Propanol / Silica (amorphous)

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## 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 / 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-5M Green [ POSCA ]

Manufacturer'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. : 010246A 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			
	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 7.8g]

---

## 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 Product 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/m <sup>3</sup> TWA (Total dust)	Titanium dioxide / Coloring agent
	1000ppm TWA	Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA	Titanium dioxide / Coloring agent
	100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol  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 ≥5000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse	Titanium dioxide Coloring agent Ethylene glycol  Ethyl alcohol
Inhalation LC50	6820mg/m <sup>3</sup> ·4H-Rat 20000ppm·10H-Rat	Titanium dioxide 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  headache,nausea irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol  Resin Coloring agent
Skin contact	irritation irritation,dry	Resin / Coloring agent Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness  irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol Resin / Coloring agent
Ingestion	physiologically inert, intestinal obstruction digestive discomfort nausea,vomiting rash,vomiting	Titanium dioxide  Resin Coloring agent / Ethylene glycol 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-5M Light green [ POSCA ]

Manufacturer'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. : 010247A 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			
	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 8.2g]

---

## 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 Product 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/m <sup>3</sup> TWA (Total dust)	Titanium dioxide / Coloring agent
	1000ppm TWA	Ethyl alcohol
	400 ppm TWA, 500ppm STEL	2-Propanol
ACGIH	10mg/m <sup>3</sup> TWA	Titanium dioxide / Coloring agent
	100mg/m <sup>3</sup> ceiling (particulate)(aerosol)	Ethylene glycol
	1000ppm TWA	Ethyl alcohol
	200ppm TWA, 400ppm STEL	2-Propanol
EC	6mg/m <sup>3</sup>	Titanium dioxide
	52mg/m <sup>3</sup> (20ppm) TWA(skin),	Ethylene glycol
	104mg/m <sup>3</sup> (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%

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## 10. STABILITY AND REACTIVITY

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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

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(Information of components)

Acute toxicity

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

Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye	Ethylene glycol / Ethyl alcohol 2-Propanol
Chronic toxicity and long term toxicity	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.	Ethylene glycol  Ethyl alcohol  2-Propanol
Signs and Symptoms of overexposure and aggravated by exposure		
Inhalation	irritation,cough  headache,nausea irritation irritation,nausea	Titanium dioxide / Ethylene glycol / Ethyl alcohol Resin Coloring agent 2-Propanol
Skin contact	irritation irritation,dry redness,swelling irritation,absorption	Resin Ethylene glycol / Ethyl alcohol Coloring agent 2-Propanol
Eye contact	irritation,redness  irritation irritation,pain	Titanium dioxide / Ethylene glycol / Ethyl alcohol Resin / Coloring agent 2-Propanol
Ingestion	physiologically inert, intestinal obstruction digestive discomfort nausea,vomiting rash,vomiting nausea,stomach pain	Titanium dioxide  Resin Ethylene glycol / Coloring agent Ethyl alcohol 2-Propanol
Specific effects	IARC Group 2B IARC Group 3	Titanium dioxide 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

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## 15. REGULATORY INFORMATION

---

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)

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

EU labeling

25%<=Xn;R22	Ethylene glycol
F;R11	Ethyl alcohol
Xi;R43	Coloring agent
F;R11, Xi;R36	2-Propanol

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Ethylene glycol / 2-Propanol
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-5M Violet [ POSCA ]

Manufacturer'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. : 010248A 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 7.6g]

## 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 Product 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/m <sup>3</sup> TWA (Total dust)	Titanium dioxide
ACGIH	10mg/m <sup>3</sup> TWA	Titanium dioxide / Coloring agent
	100mg/m <sup>3</sup> ceiling (particulate)(aerosol)	Ethylene glycol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) EC MAK TWA(skin), 104mg/m <sup>3</sup> (40ppm) EC MAK STEL(skin)	Titanium dioxide 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 / 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 1000mg/kg-Mouse 1650mg/kg-Cat, 4700mg/kg-Rat 2950mg/kg-Mouse 1310mg/kg-Rat	Titanium dioxide Resin Ethylene glycol  Coloring agent Polyoxyethylene nonylphenyl ether
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat	Titanium dioxide
Skin LD50	9530uL/kg-Rabbit 2ml/kg-Rabbit	Ethylene glycol Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation, skin, eye Irritant;eye	Ethylene glycol Polyoxyethylene nonylphenyl ether
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#### Chronic toxicity and long term toxicity

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

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

Inhalation	irritation,cough irritation	Titanium dioxide / Resin / Ethylene glycol Coloring agent / Polyoxyethylene nonylphenyl ether
Skin contact	mechanical abrasion,irritation irritation,dry burns,corrosive irritation	Resin Ethylene glycol Coloring agent Polyoxyethylene nonylphenyl ether
Eye contact	irritation,redness irritation irritation,eye damage	Titanium dioxide / Ethylene Resin Polyoxyethylene nonylphenyl ether
Ingestion	physiologically inert,intestinal obstruction digestive discomfort nausea,vomiting digestive disorders,diarrhea	Titanium dioxide Resin Ethylene glycol / Coloring agent Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 2B IARC Group 3	Titanium dioxide Resin

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## 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.

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## 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.

---

## 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 date : (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-5M Light orange [ POSCA ]

Manufacturer'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. : 010249A 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			
	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 8.3g]

---

## 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 Product 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) 1000ppm TWA 400 ppm TWA, 500ppm STEL	Titanium dioxide Ethyl alcohol 2-Propanol
ACGIH	10mg/m3 TWA 1000ppm TWA 100mg/m3 ceiling (particulate)(aerosol) 200ppm TWA, 400ppm STEL	Titanium dioxide Ethyl alcohol Ethylene glycol 2-Propanol
EC	6mg/m3 1000ppm 52mg/m3(20ppm) TWA(skin), 104mg/m3(40ppm) STEL(skin)	Titanium dioxide Ethyl alcohol 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

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(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat 3450mg/kg-Mouse 1650mg/kg-Cat, 4700mg/kg-Rat 3600mg/kg-Mouse >15000mg/kg-Rat	Titanium dioxide Ethyl alcohol Ethylene glycol  2-Propanol Coloring agent
Inhalation LC50	6820mg/m <sup>3</sup> ·4H-Rat 20000ppm·10H-Rat 11100ppm·4H-Mouse	Titanium dioxide Ethyl alcohol 2-Propanol
Skin LD50	9530uL/kg-Rabbit 12800mg/kg-Rabbit	Ethylene glycol 2-Propanol
Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye	Ethyl alcohol / Ethylene glycol 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

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

The liquid defats the skin.

Ethyl alcohol

Ethylene glycol

2-Propanol

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

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

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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

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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-5M Bright yellow [ POSCA ]

Manufacturer'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. : 010250A 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			
	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 7.6g]

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## 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 Product 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/m <sup>3</sup> TWA (Total dust) 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust] 1000ppm TWA	Titanium dioxide Coloring agent Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide / Coloring agent Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol 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 ≥5000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse	Titanium dioxide Coloring agent Ethylene glycol  Ethyl alcohol
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat 20000ppm-10H-Rat	Titanium dioxide 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 headache,nausea	Coloring agent Resin
Skin contact	redness,swelling	Coloring agent
	irritation	Resin
	irritation,dry	Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Resin
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	nausea,vomiting	Coloring agent / Ethylene glycol
	digestive discomfort	Resin
	rash,vomiting	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-5M Yellow [ POSCA ]

Manufacturer'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. : 010251A 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			
	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 7.6g]

---

## 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 Product 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/m <sup>3</sup> TWA (Total dust) 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust] 1000ppm TWA	Titanium dioxide Coloring agent Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA  100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide / Coloring agent Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol 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. [ 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	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 ≥5000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse	Titanium dioxide Coloring agent Ethylene glycol  Ethyl alcohol
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat 20000ppm-10H-Rat	Titanium dioxide 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 headache,nausea	Coloring agent Resin
Skin contact	redness,swelling	Coloring agent
	irritation	Resin
Eye contact	irritation,dry	Ethylene glycol / Ethyl alcohol
	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
Ingestion	irritation	Resin
	physiologically inert, intestinal obstruction nausea,vomiting digestive discomfort rash,vomiting	Titanium dioxide  Coloring agent / Ethylene glycol Resin Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide

---

## 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.

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## 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.

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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 : (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-5M 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. : 010252A 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			
	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

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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 7.7g]

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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 Product 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

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Engineering measures : Not required.

## Control parameters (Information of components.)

OSHA	15mg/m <sup>3</sup> TWA (Total dust) 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust]	Titanium dioxide Coloring agent
	1000ppm TWA	Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA	Titanium dioxide / Coloring agent
	100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol Ethyl alcohol

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	: 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

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## 11. TOXICOLOGICAL INFORMATION

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(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat ≥5000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse	Titanium dioxide Coloring agent Ethylene glycol  Ethyl alcohol
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat 20000ppm-10H-Rat	Titanium dioxide 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  headache,nausea irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol  Resin Coloring agent
Skin contact	irritation redness,swelling of skin irritation,dry	Resin Coloring agent Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness  irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol  Resin
Ingestion	physiologically inert, intestinal obstruction digestive discomfort nausea,vomiting rash,vomiting	Titanium dioxide  Resin Coloring agent / Ethylene glycol 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-5M Pink [ POSCA ]

Manufacturer'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. : 010253A 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			
	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.

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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 7.9g]

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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 Product 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.

: Not available.

Safe handling advice : Not available.

**Storage:**

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

: 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
halo carbons, metals, metal salts, oxidizing materials,	Ethyl alcohol
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	Titanium dioxide / Coloring agent
	1000ppm TWA	Ethyl alcohol
ACGIH	10mg/m3 TWA	Titanium dioxide / Coloring agent
	1000ppm TWA 100mg/m3 ceiling (particulate)(aerosol)	Ethyl alcohol Ethylene glycol
EC	6mg/m3 52mg/m3(20ppm) TWA(skin), 104mg/m3(40ppm) STEL(skin) 1000ppm	Titanium dioxide 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%

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## 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 halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials	Ethylene glycol Ethyl alcohol
Hazardous decomposition products	: (Information of components.)
oxides of carbon, water	common decomposition products
oxides of titanium.	Titanium dioxide
oxides of nitrogen, cyanides, aldehydes, corrosive acrolein, various organic fragments, miscellaneous decomposition products.	Resin
oxides of nitrogen.	Coloring agent

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## 11. TOXICOLOGICAL INFORMATION

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(Information of components)

Acute toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure		
Inhalation	irritation,cough	Titanium dioxide / Resin / Ethylene glycol / Ethyl alcohol Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation	
Skin contact	mechanical abrasion,irritation irritation,dry redness,swelling of skin irritation	Resin Ethylene glycol / Ethyl alcohol Coloring agent Polyoxyethylene nonylphenyl ether
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation irritation,eye damage	Resin Polyoxyethylene nonylphenyl ether
Ingestion	physiologically inert,intestinal digestive discomfort nausea,vomiting rash,vomiting digestive disorders,diarrhea	Titanium dioxide Resin Ethylene glycol / Coloring agent Ethyl alcohol Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 2B IARC Group 3	Titanium dioxide Resin

## 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 : (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-5M Light blue [ POSCA ]

Manufacturer'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. : 010254A 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			
	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

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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 8.4g]

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## 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 Product 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.

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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	
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/m <sup>3</sup> TWA (Total dust) 1000ppm TWA 400 ppm TWA, 500ppm STEL 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust]	Titanium dioxide Ethyl alcohol 2-Propanol Coloring agent
ACGIH	10mg/m <sup>3</sup> TWA 1000ppm TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 200ppm TWA, 400ppm STEL	Titanium dioxide / Coloring agent Ethyl alcohol Ethylene glycol 2-Propanol
EC	6mg/m <sup>3</sup> 1000ppm 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin)	Titanium dioxide Ethyl alcohol 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. 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 3450mg/kg-Mouse 1650mg/kg-Cat, 4700mg/kg-Rat 3600mg/kg-Mouse >5000mg/kg-Rat	Titanium dioxide Ethyl alcohol Ethylene glycol 2-Propanol Coloring agent
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat 20000ppm-10H-Rat 11100ppm-4H-Mouse	Titanium dioxide Ethyl alcohol 2-Propanol
Skin LD50	9530uL/kg-Rabbit 12800mg/kg-Rabbit	Ethylene glycol 2-Propanol
Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye	Ethyl alcohol / Ethylene glycol 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  headache,nausea irritation,nausea irritation	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin 2-Propanol Coloring agent
Skin contact	irritation irritation,dry irritation,absorption	Resin Ethyl alcohol / Ethylene glycol 2-Propanol
Eye contact	irritation,redness  irritation irritation,pain	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin / Coloring agent 2-Propanol
Ingestion	physiologically inert, intestinal obstruction digestive discomfort rash,vomiting nausea,vomiting nausea,stomach pain gastric disturbances	Titanium dioxide  Resin Ethyl alcohol Ethylene glycol 2-Propanol Coloring agent
Specific effects	IARC Group 2B  IARC Group 3	Titanium dioxide 2-Propanol

---

**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**


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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 / 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.

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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 : (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-5M Brown [ POSCA ]

Manufacturer'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. : 010255A 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			
	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 7.6g]

---

## 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 Product 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/m <sup>3</sup> TWA (Total dust) 5mg/m <sup>3</sup> (Respirable fraction), 15mg/m <sup>3</sup> (Total dust) [Nuisance Dust] 1000ppm TWA	Titanium dioxide Coloring agent Ethyl alcohol
ACGIH	10mg/m <sup>3</sup> TWA  100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide / Coloring agent Ethylene glycol Ethyl alcohol
EC	6mg/m <sup>3</sup> 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 1000ppm	Titanium dioxide Ethylene glycol 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 >5000mg/kg-Rat 1650mg/kg-Cat, 4700mg/kg-Rat 3450mg/kg-Mouse	Titanium dioxide Coloring agent Ethylene glycol  Ethyl alcohol
Inhalation LC50	6820mg/m <sup>3</sup> ·4H·Rat 20000ppm·10H·Rat	Titanium dioxide 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  headache,nausea irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol  Resin Coloring agent
Skin contact	irritation redness,swelling irritation,dry	Resin Coloring agent Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness  irritation	Titanium dioxide / Ethylene glycol / Ethyl alcohol  Resin / Coloring agent
Ingestion	physiologically inert, intestinal obstruction digestive discomfort nausea,vomiting rash,vomiting	Titanium dioxide  Resin Coloring agent / Ethylene glycol 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-5M Gray [ POSCA ]

Manufacturer'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. : 010256A 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			
	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 8.5g]

---

## 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 Product 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		
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/m <sup>3</sup> TWA (Total dust) 1000ppm TWA 400 ppm TWA, 500ppm STEL 3.5mg/m <sup>3</sup> TWA	Titanium dioxide Ethyl alcohol 2-Propanol Carbon Black
ACGIH	10mg/m <sup>3</sup> TWA 1000ppm TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 200ppm TWA, 400ppm STEL 3.5mg/m <sup>3</sup> TWA	Titanium dioxide Ethyl alcohol Ethylene glycol 2-Propanol Carbon Black
EC	6mg/m <sup>3</sup> 1000ppm 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin) 3.5mg/m <sup>3</sup> TWA	Titanium dioxide Ethyl alcohol Ethylene glycol  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 3450mg/kg-Mouse 1650mg/kg-Cat, 4700mg/kg-Rat 3600mg/kg-Mouse >10000mg/kg-Rat	Titanium dioxide Ethyl alcohol Ethylene glycol  2-Propanol Carbon Black
Inhalation LC50	6820mg/m <sup>3</sup> ·4H-Rat 20000ppm·10H-Rat 11100ppm·4H-Mouse	Titanium dioxide Ethyl alcohol 2-Propanol
Skin LD50	9530uL/kg-Rabbit 12800mg/kg-Rabbit >3000mg/kg-Rabbit	Ethylene glycol 2-Propanol Carbon Black
Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye Irritant;inhalation, skin	Ethyl alcohol / Ethylene glycol 2-Propanol 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  headache,nausea irritation,nausea irritation	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin 2-Propanol Carbon Black
Skin contact	irritation irritation,dry irritation,absorption	Resin / Carbon Black Ethyl alcohol / Ethylene glycol 2-Propanol
Eye contact	irritation,redness  irritation irritation,pain mechanical irritation,discoloration of lids	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin 2-Propanol Carbon Black
Ingestion	physiologically inert, intestinal obstruction digestive discomfort rash,vomiting nausea,vomiting nausea,stomach pain	Titanium dioxide  Resin Ethyl alcohol Ethylene glycol 2-Propanol

Specific effects	IARC Group 2B	Titanium dioxide / Carbon Black
	IARC Group 3	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 / 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 date : (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-5M White [ POSCA ]

Manufacturer'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. : 010257A 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			
	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 8.6g]

---

## 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 Product 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/m <sup>3</sup> TWA (Total dust) 1000ppm TWA 400 ppm TWA, 500ppm STEL	Titanium dioxide Ethyl alcohol 2-Propanol
ACGIH	10mg/m <sup>3</sup> TWA 1000ppm TWA 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 200ppm TWA, 400ppm STEL	Titanium dioxide Ethyl alcohol Ethylene glycol 2-Propanol
EC	6mg/m <sup>3</sup> 1000ppm 52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin)	Titanium dioxide Ethyl alcohol 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 3450mg/kg-Mouse 1650mg/kg-Cat, 4700mg/kg-Rat 3600mg/kg-Mouse	Titanium dioxide Ethyl alcohol Ethylene glycol 2-Propanol
Inhalation LC50	6820mg/m <sup>3</sup> -4H-Rat 20000ppm-10H-Rat 11100ppm-4H-Mouse	Titanium dioxide Ethyl alcohol 2-Propanol
Skin LD50	9530uL/kg-Rabbit 12800mg/kg-Rabbit	Ethylene glycol 2-Propanol
Local effects	Irritant;inhalation, skin, eye Irritant;inhalation, eye	Ethyl alcohol / Ethylene glycol 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  headache,nausea irritation,nausea	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin 2-Propanol
Skin contact	irritation irritation,dry irritation,absorption	Resin Ethyl alcohol / Ethylene glycol 2-Propanol
Eye contact	irritation,redness  irritation irritation,pain	Titanium dioxide / Ethyl alcohol / Ethylene glycol Resin 2-Propanol
Ingestion	physiologically inert, intestinal obstruction digestive discomfort rash,vomiting nausea,vomiting nausea,stomach pain	Titanium dioxide  Resin Ethyl alcohol Ethylene glycol 2-Propanol
Specific effects	IARC Group 2B  IARC Group 3	Titanium dioxide 2-Propanol

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## 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.

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## 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 / 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.

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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 : (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-5M Gold [ POSCA ]

Manufacturer'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. : 010258A 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			
	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

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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 6.5g]

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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 Product 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.) acids, combustible materials, oxidizing oxidizing materials oxidizing materials, bases, acids, reducing agents, metals strong oxidizers	
	Aluminum paste	Coloring agent / Petroleum solvents
	Ethylene glycol	
	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/m <sup>3</sup> (total dust), 5mg/m <sup>3</sup> (respirable fraction) 15mg/m <sup>3</sup> PEL (Nuisance Dust) 500ppm	Aluminum paste Coloring agent Petroleum solvents
ACGIH	10mg/m <sup>3</sup> TWA (metal particulate) 10mg/m <sup>3</sup> TWA(Nuisance Dust) 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 100ppm	Aluminum paste Coloring agent Ethylene glycol Petroleum solvents
EC	52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin)	Ethylene glycol

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%

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## 10. STABILITY AND REACTIVITY

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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 oxidizing materials	Aluminum paste
oxidizing materials, bases, acids, reducing agents, metals	Coloring agent / Petroleum solvents
strong oxidizers	Ethylene glycol
	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

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## 11. TOXICOLOGICAL INFORMATION

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(Information of components)

Acute toxicity

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

Local effects : Irritant;inhalation  
Irritant;inhalation, skin, eye

Aluminum paste  
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 irritation irritation,nausea	Aluminum paste / Ethylene glycol Coloring agent Petroleum solvents
Skin contact	irritation,itching allergic contact dermatitis irritation,dry irritation irritation,headache	Aluminum paste Coloring agent Ethylene glycol Additive Petroleum solvents
Eye contact	irritation,eye damage irritation,redness irritation	Aluminum paste Ethylene glycol Additive
Ingestion	irritation,digestive disorders nausea,vomiting irritation,nausea	Aluminum paste Coloring agent / Ethylene glycol 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
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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-5M Silver [ POSCA ]

Manufacturer'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. : 010259A 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			
	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

---

**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 6.8g]

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## 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 Product 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.

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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.)
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 oxidizing materials	Aluminum paste
strong oxidizers	Ethylene glycol
	Petroleum solvents
	Additive
Packaging materials	: Not applicable.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m <sup>3</sup> (total dust), 5mg/m <sup>3</sup> (respirable fraction) 500ppm	Aluminum paste Petroleum solvents
ACGIH	10mg/m <sup>3</sup> TWA (metal particulate) 100mg/m <sup>3</sup> ceiling (particulate)(aerosol) 100ppm	Aluminum paste Ethylene glycol Petroleum solvents
EC	52mg/m <sup>3</sup> (20ppm) TWA(skin), 104mg/m <sup>3</sup> (40ppm) STEL(skin)	Ethylene glycol

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 materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste	
oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol	
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 1650mg/kg-Cat, 4700mg/kg-Rat 28000mg/kg-Rat	Aluminum paste Ethylene glycol Petroleum solvents
Inhalation LC50	Not available.	

Skin LD50	9530uL/kg-Rabbit 28000m g /kg-Rabbit	Ethylene glycol Petroleum solvents
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Local effects	Irritant;inhalation Irritant;inhalation, skin, eye	Aluminum paste Ethylene glycol
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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
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The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
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Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough irritation,nausea	Aluminum paste / Ethylene glycol Petroleum solvents
Skin contact	irritation,itching irritation,dry irritation,headache irritation	Aluminum paste Ethylene glycol Petroleum solvents Additive

Eye contact	irritation,eye damage irritation,redness irritation	Aluminum paste Ethylene glycol Additive
Ingestion	irritation,digestive disorders nausea,vomiting irritation,nausea	Aluminum paste Ethylene glycol 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
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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 date : (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.