Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-1MR Black [uni 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 : May 22, 2009
Revision Date
File No. : 010308A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Carbon Black	1333-86-4	Registered	2156099	< 10
Resin	Registered	Registered	Polymer	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 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.

<Carbon Black>
MAJOR HEALTH HAZARDS: suspect cancer hazard (in animals)
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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	3.5mg/m3 TWA	Carbon Black
	1000ppm TWA	Ethyl alcohol
ACGIH	3.5mg/m3 TWA	Carbon Black
	100mg/m3 ceiling (particulate)(aerosol)	Ethylene glycol
	1000ppm TWA	Ethyl alcohol
EC	3.5mg/m3 TWA	Carbon Black
	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL(skin)	Ethylene glycol
	1000ppm	Ethyl alcohol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Black.
Odor : Faint odor.
pH : about 8.6
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
Volatile : 82-85%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, halogens	Carbon Black
oxidizing materials	Resin
oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials	Ethyl alcohol

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
sulfur compounds	Carbon Black

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>10000mg/kg-Rat	Carbon Black
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	3450mg/kg-Mouse	Ethyl alcohol
	>14280mg/kg	Additive
Inhalation LC50	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	>3000mg/kg-Rabbit	Carbon Black
	9530uL/kg-Rabbit	Ethylene glycol

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

Chronic toxicity and long term toxicity

Lungs may be affected by repeated or prolonged exposure at very high concentrations.	Carbon Black
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.	Ethyl alcohol

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Carbon Black / Resin
	irritation,cough	Ethylene glycol / Ethyl alcohol
Skin contact	irritation	Carbon Black / Resin
	irritation,dry	Ethylene glycol / Ethyl alcohol

Eye contact	mechanical irritation, discoloration of lids	Carbon Black
	irritation	Resin
	irritation,redness	Ethylene glycol / Ethyl alcohol
Ingestion	nausea,vomiting	Ethylene glycol
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Carbon Black
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

12. ECOLOGICAL INFORMATION

Not available.

13. DISPOSAL CONSIDERATIONS

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

Contaminated packaging : Not applicable.

14. TRANSPORT INFORMATION

HS Code : 960820

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS) : Carbon Black / Ethylene glycol / Ethyl alcohol

EU labeling

25%<=Xn;R22	Ethylene glycol
F;R11	Ethyl alcohol

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Carbon Black / 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 : (May 22, 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-1MR Red [uni 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 : May 22, 2009
Revision Date
File No. : 010309A Rev. 2.5.01.01

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	EINECSNo.	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	Polymer	< 10
Additive	Registered	Registered	Registered	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 10

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

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

<Ethyl alcohol>
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 2.0g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust) 5mg/m3(Respirable fraction), 15mg/m3(Total dust)	Titanium dioxide Additive
	1000ppm TWA	Ethyl alcohol
ACGIH	10mg/m3 TWA 100mg/m3 ceiling (particulate)(aerosol)	Titanium dioxide / Additive Ethylene glycol
	1000ppm TWA	Ethyl alcohol
EC	6mg/m3 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL(skin)	Titanium dioxide Ethylene glycol
	1000ppm	Ethyl alcohol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Red.
Odor : Faint odor.
pH : about 7.9
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
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	Coloring agent /
acids, strong oxidizers	Additive
oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials	Ethyl alcohol

Hazardous decomposition products : (Information of components.)

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

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	19500mg/kg-Rat	Additive
	1650mg/kg-Cat,	Ethylene glycol
	4700mg/kg-Rat	
	3450mg/kg-Mouse	Ethyl alcohol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol

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

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

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

Skin contact	redness,swelling of skin	Coloring agent
	irritation	Resin / Additive
	irritation,dry	Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Resin / Additive
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	nausea,vomiting	Coloring agent
	digestive discomfort	Resin
	diarrhea	Additive
	nausea,vomiting	Ethylene glycol
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / 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 : (May 22, 2009). They are given quite sincerely.
Moreover the attention of the users is drawn on the risks possibly taken,

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-1MR Blue [uni 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 : May 22, 2009
Revision Date
File No. : 010310A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Resins	Registered	Registered	Polymer	< 10
Coloring agent	Registered	Registered	Registered	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Additive	Registered	Registered	Registered	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 10

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

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

<Ethyl alcohol>
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)
Skin contact:
Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.
Eye contact:
Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.
Ingestion:
If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 2.1g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.
Extinguishing media:
Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.
Fire fighting : The Products is no flammable.
Use extinguishing agents appropriate for surrounding fire.
Avoid inhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : Not available.
Environmental precautions : Do not wash away into shower or water way.
Methods for cleaning up : Wipe off by dry cloth and wash with water.
: In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Keep out of the reach of children.
: Avoid contact with skin and eyes.
Precautions : Not available.
Safe handling advice : Not available.
Storage:
Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition : Avoid direct sunlight.
: Do not leave the products in high temperature space.
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust) 5mg/m3(Respirable fraction), 15mg/m3(Total dust) [Nuisance Dust] 1000ppm TWA	Titanium dioxide Coloring agent / Additive Ethyl alcohol
ACGIH	10mg/m3 TWA 100mg/m3 ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide / Coloring agent / Additive Ethylene glycol Ethyl alcohol
EC	6mg/m3 52mg/m3(20ppm) TWA, 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 : Blue.
Odor : Faint odor.
pH : about 8.4
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
Volatile : 67-70%

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
acids, strong oxidizers	Additive
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials	Ethyl alcohol

Hazardous decomposition products : (Information of components.)

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

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	>5000mg/kg-Rat	Coloring agent
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	19500mg/kg-Rat	Additive
	3450mg/kg-Mouse	Ethyl alcohol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol

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

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent
	headache,nausea	Resin
Skin contact	irritation	Resin / Additive
	irritation,dry	Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent / Resin / Additive
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	gastric disturbances	Coloring agent
	digestive discomfort	Resin
	nausea,vomiting	Ethylene glycol
	diarrhea	Additive
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / 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 : (May 22, 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-1MR Green [uni 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 : May 22, 2009
Revision Date
File No. : 010311A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
Additive	Registered	Registered	Registered	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 10

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

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

<Ethyl alcohol>
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

4. FIRST-AID MEASURES

Inhalation:

Not applicable.
(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 2.1g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.
Incompatible products	:	(Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

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

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Color	: Green.
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
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	Coloring agent / Resin
acids, strong oxidizers	Additive
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
cyanide, 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	Titanium dioxide
	≧5000mg/kg-Rat	Coloring agent
	19500mg/kg-Rat	Additive
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	3450mg/kg-Mouse	Ethyl alcohol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol

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

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent
	headache,nausea	Resin
Skin contact	redness,swelling	Coloring agent
	irritation	Resin / Additive
	irritation,dry	Ethylene glycol / Ethyl alcohol
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent / Resin / Additive
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	nausea,vomiting	Coloring agent / Ethylene glycol
	digestive discomfort	Resin
	diarrhea	Additive
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / 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：(May 22, 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-1MR Violet [uni 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 : May 22, 2009
Revision Date
File No. : 010312A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Polymer	10- 30
Titanium dioxide	13463-67-7	Registered	2366755	< 10
Additive	Registered	Registered	Registered	< 10
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.

<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 2.0g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

metals	Titanium dioxide
oxidizing materials	Resin / Colorimg agent / Polyoxyethylene nonylphenyl ether
acids, strong oxidizers	Additive
oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust) 5mg/m3(Respirable fraction), 15mg/m3(Total dust)	Titanium dioxide Additive
ACGIH	10mg/m3 TWA 100mg/m3 ceiling (particulate)(aerosol)	Titanium dioxide / Additive / Coloring agent Ethylene glycol
EC	6mg/m3 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) 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 7.8
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	: 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 / Colorimg agent / Polyoxyethylene nonylphenyl ether
acids, strong oxidizers	Additive
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, corrosive acrolein, various organic fragments, miscellaneous decomposition products.	Resin
miscellaneous decomposition products.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	1000mg/kg-Mouse	Resin
	≧5000mg/kg-Rat	Additive
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	2950mg/kg-Mouse	Coloring agent
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation, skin, eye	Ethylene glycol
	Irritant;eye	Polyoxyethylene nonylphenyl ether

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

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

12. ECOLOGICAL INFORMATION

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 / Additive / 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 data : (May 22, 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-1MR Yellow [uni 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 : May 22, 2009
Revision Date :
File No. : 010313A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Coloring agents	Registered	Registered	Registered	< 10
Resins	Registered	Registered	Polymer	< 10
Additive	Registered	Registered	Registered	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 10

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

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

<Ethyl alcohol>
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 2.0g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust) 5mg/m3(Respirable fraction), 15mg/m3(Total dust) [Nuisance Dust] 1000ppm TWA	Titanium dioxide Coloring agent / Additive Ethyl alcohol
ACGIH	10mg/m3 TWA 100mg/m3 ceiling (particulate)(aerosol) 1000ppm TWA	Titanium dioxide / Coloring agent / Additive Ethylene glycol Ethyl alcohol
EC	6mg/m3 52mg/m3(20ppm) TWA, 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 : Yellow.
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
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	Coloring agent / Resin
acids, strong oxidizers	Additive
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	Titanium dioxide
	≧5000mg/kg-Rat	Coloring agent
	19500mg/kg-Rat	Additive
	1650mg/kg-Cat,	Ethylene glycol
	4700mg/kg-Rat	
	3450mg/kg-Mouse	Ethyl alcohol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
Local effects	Irritant;inhalation, skin, eye	Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent
	headache,nausea	Resin
Skin contact	redness,swelling of skin	Coloring agent
	irritation	Resin / Additive
	irritation,dry	Ethylene glycol / Ethyl alcohol

Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Resin / Additive
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	nausea,vomiting	Coloring agent / Ethylene glycol
	digestive discomfort	Resin
	diarrhea	Additive
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / Ethylene glycol / Ethyl alcohol

EU labeling : Not restricted.

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 : (May 22, 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-1MR Orange [uni 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 : May 22, 2009
Revision Date :
File No. : 010314A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
Additive	Registered	Registered	Registered	< 10
Ethylene glycol	107-21-1	Registered	2034733	< 10
Ethyl alcohol	64-17-5	Registered	2005786	< 10

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

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

<Ethyl alcohol>
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, liver damage, central nervous system depression
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikely at room temperature.)

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 2.1g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust)	Titanium dioxide
	5mg/m3(Respirable fraction), 15mg/m3(Total dust) [Nuisance Dust]	Coloring agent / Additive
	1000ppm(1900mg/m3) TWA	Ethyl alcohol
ACGIH	10mg/m3 TWA	Titanium dioxide / Coloring agent / Additive
	100mg/m3 ceiling (particulate)(aerosol)	Ethylene glycol
	1000ppm TWA	Ethyl alcohol
EC	6mg/m3	Titanium dioxide
	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL(skin)	Ethylene glycol
	1000ppm	Ethyl alcohol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Orange.
Odor : Faint odor.
pH : about 8.1
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
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
acids, strong oxidizers	Additive
oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials	Ethyl alcohol

Hazardous decomposition products : (Information of components.)

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

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	≧5000mg/kg-Rat	Coloring agent
	19500mg/kg-Rat	Additive
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	3450mg/kg-Mouse	Ethyl alcohol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
Local effects	Irritant;inhalation, skin, eye	Ethylene glycol / Ethyl alcohol

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	headache,nausea	Resin
	irritation	Coloring agent
Skin contact	irritation	Resin / Additive
	redness,swelling of skin	Coloring agent
	irritation,dry	Ethylene glycol / Ethyl alcohol

Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Resin / Additive
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	digestive discomfort	Resin
	nausea,vomiting	Coloring agent / Ethylene glycol
	diarrhea	Additive
	rash,vomiting	Ethyl alcohol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / Ethylene glycol / Ethyl alcohol

EU labeling : Not restricted.

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 : (May 22, 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-1MR Pink [uni 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 : May 22, 2009
Revision Date :
File No. : 010315A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Resins	Registered	Registered	Polymer	10- 30
Additive	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
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.

<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 2.1g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust)	Titanium dioxide
	5mg/m3(Respirable fraction), 15mg/m3(Total dust)	Additive / Coloring agent
	1000ppm TWA	Ethyl alcohol
ACGIH	10mg/m3 TWA	Titanium dioxide / Additive / Coloring agent
	100mg/m3 ceiling (particulate)(aerosol)	Ethylene glycol
	1000ppm TWA	Ethyl alcohol
EC	6mg/m3	Titanium dioxide
	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL(skin)	Ethylene glycol
	1000ppm	Ethyl alcohol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Pink.
Odor : Faint odor.
pH : about 7.9
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% <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. [Ethyl alcohol/ 1.4(carbon tetrachloride=1)]
Volatile	: 64-67%

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 / Colorimg agent / Polyoxyethylene nonylphenyl ether
acids, strong oxidizers	Additive
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, cyanides, aldehydes, corrosive acrolein, various organic fragments, miscellaneous decomposition products.	Resin
oxides of nitrogen.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	1000mg/kg-Mouse	Resin
	19500mg/kg-Rat	Additive
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	3450mg/kg-Mouse	Ethyl alcohol
	2950mg/kg-Mouse	Coloring agent
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

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

Chronic toxicity and long term toxicity

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

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation,cough	Titanium dioxide / Resin / Ethylene glycol / Ethyl alcohol
	irritation	Coloring agent / Polyoxyethylene nonylphenyl ether
Skin contact	mechanical abrasion,irritation	Resin
	irritation	Additive / Polyoxyethylene nonylphenyl ether
	irritation,dry	Ethylene glycol / Ethyl alcohol
	redness,swelling of skin	Coloring agent
Eye contact	irritation,redness	Titanium dioxide / Ethylene glycol / Ethyl alcohol
	irritation	Resin / Additive
	irritation,eye damage	Polyoxyethylene nonylphenyl ether
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	digestive discomfort	Resin
	diarrhea	Additive
	nausea,vomiting	Ethylene glycol / Coloring agent
	rash,vomiting	Ethyl alcohol
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether

Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 3	Resin
	IARC Group 1(Alcohol beverages)	Ethyl alcohol

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 / Additive / 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：(May 22, 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-1MR Light blue [uni 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 : May 22, 2009
Revision Date
File No. : 010316A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Additive	Registered	Registered	Registered	< 10
Resins	Registered	Registered	Polymer	< 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.

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 2.2g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

metals	Titanium dioxide
acids, strong oxidizers	Additive
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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

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

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Light blue.
Odor : Faint odor.
pH : about 7.9
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% , 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. [2-Propanol/ 2.88]
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
acids, strong oxidizers	Additive
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	Titanium dioxide
	19500mg/kg-Rat	Additive
	3450mg/kg-Mouse	Ethyl alcohol
	1650mg/kg-Cat,	Ethylene glycol
	4700mg/kg-Rat	
	3600mg/kg-Mouse	2-Propanol
	>5000mg/kg-Rat	Coloring agent
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
	11100ppm-4H-Mouse	2-Propanol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	12800mg/kg-Rabbit	2-Propanol

Local effects	Irritant;inhalation, skin, eye	Ethyl alcohol / Ethylene glycol
	Irritant;inhalation, eye	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.	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	Titanium dioxide / Ethyl alcohol / Ethylene glycol
	headache,nausea	Resin
	irritation,nausea	2-Propanol
	irritation	Coloring agent
Skin contact	irritation	Additive / Resin
	irritation,dry	Ethyl alcohol / Ethylene glycol
	irritation,absorption	2-Propanol
Eye contact	irritation,redness	Titanium dioxide / Ethyl alcohol / Ethylene glycol
	irritation	Additive / Resin / Coloring agent
	irritation,pain	2-Propanol
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	diarrhea	Additive
	digestive discomfort	Resin
	rash,vomiting	Ethyl alcohol
	nausea,vomiting	Ethylene glycol
	nausea,stomach pain	2-Propanol
	gastric disturbances	Coloring agent
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol
	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 / Additive / Ethyl alcohol / Ethylene glycol / 2-Propanol

EU labeling

F;R11	Ethyl alcohol
25%<=Xn;R22	Ethylene glycol
F;R11, Xi;R36, R67	2-Propanol
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：(May 22, 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-1MR White [uni 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 : May 22, 2009
Revision Date :
File No. : 010317A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Titanium dioxide	13463-67-7	Registered	2366755	10- 30
Resins	Registered	Registered	Polymer	< 10
Additive	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.

<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.

<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 2.3g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

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

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

Fire fighting : The Products is no flammable.
Use extinguishing agents appropriate for surrounding fire.
Avoid inhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

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
acids, strong oxidizers	Additive
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

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 TWA (Total dust) 5mg/m3(Respirable fraction), 15mg/m3(Total dust)	Titanium dioxide Additive
	1000ppm TWA	Ethyl alcohol
	400 ppm TWA, 500ppm STEL	2-Propanol
ACGIH	10mg/m3 TWA	Titanium dioxide / Additive
	1000ppm TWA	Ethyl alcohol
	100mg/m3 ceiling (particulate)(aerosol)	Ethylene glycol
	200ppm TWA, 400ppm STEL	2-Propanol
EC	6mg/m3	Titanium dioxide
	1000ppm	Ethyl alcohol
	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL(skin)	Ethylene glycol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : White.
Odor : Faint odor.
pH : about 7.9
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. [2-Propanol/ 2.88]
Volatile : 62-65%

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
acids, strong oxidizers	Additive
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	Titanium dioxide
	19500mg/kg-Rat	Additive
	3450mg/kg-Mouse	Ethyl alcohol
	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	3600mg/kg-Mouse	2-Propanol
Inhalation LC50	6820mg/m3-4H-Rat	Titanium dioxide
	11000mg/m3-6H	Additive
	20000ppm-10H-Rat	Ethyl alcohol
	11100ppm-4H-Mouse	2-Propanol
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	12800mg/kg-Rabbit	2-Propanol

Local effects	Irritant;inhalation, skin, eye	Ethyl alcohol / Ethylene glycol
	Irritant;inhalation, eye	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.	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	Titanium dioxide / Ethyl alcohol / Ethylene glycol
	headache,nausea	Resin
	irritation,nausea	2-Propanol
Skin contact	irritation	Resin / Additive
	irritation,dry	Ethyl alcohol / Ethylene glycol
	irritation,absorption	2-Propanol
Eye contact	irritation,redness	Titanium dioxide / Ethyl alcohol / Ethylene glycol
	irritation	Resin / Additive
	irritation,pain	2-Propanol
Ingestion	physiologically inert, intestinal obstruction	Titanium dioxide
	digestive discomfort	Resin
	diarrhea	Additive
	rash,vomiting	Ethyl alcohol
	nausea,vomiting	Ethylene glycol
	nausea,stomach pain	2-Propanol
Specific effects	IARC Group 2B	Titanium dioxide
	IARC Group 1(Alcohol beverages)	Ethyl alcohol
	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 / Additive / Ethyl alcohol / Ethylene glycol / 2-Propanol

EU labeling : Not restricted.

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：(May 22, 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-1MR Metallic green [uni 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 : May 22, 2009
Revision Date
File No. : 010318A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Glycerine	56-81-5	Registered	2002895	< 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.

<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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Coloring agent / Glycerine
ACGIH	10mg/m3 TWA(Nuisance particulate)	Resin / Additive / Coloring agent / Glycerine
	10mg/m3 TWA (metal particulate)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Metallic green.
Odor : Faint odor.
pH : about 8.3
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Auto ignition temperature : Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits : Not applicable.
[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density : about 1.1 / 25 C
Vapor density (air=1) : Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water : Soluble.
Evaporation rate : Not available. [2-Propanol, 1-methoxy-/ 0.7]
Volatile : 71-74%

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.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
acrolein, aldehydes.	Resin
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine
cyanide, oxides of nitrogen.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>3000mg/kg-Rat	Resin
	>5000mg/kg-Rat	Aluminum paste
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	≧5000mg/kg-Rat	Coloring agent
	4090mg/kg-Mouse	Glycerine
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	12000mg/kg-Mouse	Resin
	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant; inhalation	Aluminum paste
	dehydration	Additive
	Irritant; inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

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 liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
Eye contact	irritation	Resin / Additive / Coloring agent
	irritation,eye damage	Aluminum paste / Polyoxyethylene nonylphenyl ether
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	gastric disturbances	Coloring agent
	nausea,vomiting	Glycerine
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 3	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)

：Aluminum paste / Additive / 2-Propanol, 1-methoxy- / Glycerine

EU labeling

F;R15-17	Aluminum paste
R10	2-Propanol, 1-methoxy-

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Aluminum paste / 2-Propanol, 1-methoxy-

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：(May 22, 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-1MR Metallic pink [uni 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 : May 22, 2009
Revision Date
File No. : 010319A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Glycerine	56-81-5	Registered	2002895	< 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.

<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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Glycerine / Coloring agent
ACGIH	10mg/m3 TWA(Nuisance particulate)	Resin / Additive / Glycerine / Coloring agent
	10mg/m3 TWA (metal particulate)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Metallic pink.
Odor : Faint odor.
pH : about 8.3
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Auto ignition temperature : Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits : Not applicable.
[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density : about 1.1 / 25 C
Vapor density (air=1) : Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water : Soluble.
Evaporation rate : Not available. [2-Propanol, 1-methoxy-/ 0.7]
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.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
acrolein, aldehydes.	Resin
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine
oxides of nitrogen.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>3000mg/kg-Rat	Resin
	>5000mg/kg-Rat	Aluminum paste / Coloring agent
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	4090mg/kg-Mouse	Glycerine
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	12000mg/kg-Mouse	Resin
	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	>3000mg/kg-Rabbit	Coloring agent
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

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 liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
	redness,swelling	Coloring agent
Eye contact	irritation	Resin / Additive
	irritation,eye damage	Aluminum paste / Polyoxyethylene nonylphenyl ether
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	nausea,vomiting	Glycerine / Coloring agent
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 3	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)

：Aluminum paste / Additive / 2-Propanol, 1-methoxy- / Glycerine

EU labeling

F;R15-17	Aluminum paste
R10	2-Propanol, 1-methoxy-

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Aluminum paste / 2-Propanol, 1-methoxy-

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：(May 22, 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-1MR Metallic red [uni 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 : May 22, 2009
Revision Date
File No. : 010320A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Glycerine	56-81-5	Registered	2002895	< 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.

<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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Glycerine / Coloring agent
ACGIH	10mg/m3 TWA(Nuisance particulate)	Resin / Additive / Glycerine / Coloring agent
	10mg/m3 TWA (metal particulate)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Metallic red.
Odor : Faint odor.
pH : about 8.3
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Auto ignition temperature : Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits : Not applicable.
[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density : about 1.1 / 25 C
Vapor density (air=1) : Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water : Soluble.
Evaporation rate : Not available. [2-Propanol, 1-methoxy-/ 0.7]
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.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
acrolein, aldehydes.	Resin
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine
oxides of nitrogen.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>3000mg/kg-Rat	Resin
	>5000mg/kg-Rat	Aluminum paste / Coloring agent
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	4090mg/kg-Mouse	Glycerine
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	12000mg/kg-Mouse	Resin
	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

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 liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	sensitization	Additive
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
	redness,swelling	Coloring agent
Eye contact	irritation	Resin / Additive
	irritation,eye damage	Aluminum paste / Polyoxyethylene nonylphenyl ether
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	nausea,vomiting	Glycerine / Coloring agent
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 3	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)

：Aluminum paste / Additive / 2-Propanol, 1-methoxy- / Glycerine

EU labeling

F;R15-17	Aluminum paste
R10	2-Propanol, 1-methoxy-

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Aluminum paste / 2-Propanol, 1-methoxy-

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：(May 22, 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-1MR Metallic blue [uni 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 : May 22, 2009
Revision Date
File No. : 010321A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Glycerine	56-81-5	Registered	2002895	< 10
Coloring agent	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.

<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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Glycerine / Coloring agent
ACGIH	10mg/m3 TWA(Nuisance particulate)	Resin / Additive / Glycerine / Coloring agent
	10mg/m3 TWA (metal particulate)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Color : Metallic blue.
Odor : Faint odor.
pH : about 8.3
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Auto ignition temperature : Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits : Not applicable.
[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density : about 1.1 / 25 C
Vapor density (air=1) : Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water : Soluble.
Evaporation rate : Not available. [2-Propanol, 1-methoxy-/ 0.7]
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.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
acrolein, aldehydes.	Resin
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine
oxides of nitrogen.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>3000mg/kg-Rat	Resin
	>5000mg/kg-Rat	Aluminum paste / Coloring agent
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	4090mg/kg-Mouse	Glycerine
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	12000mg/kg-Mouse	Resin
	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant; inhalation	Aluminum paste
	dehydration	Additive
	Irritant; inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

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 liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
Eye contact	irritation	Resin / Additive / Coloring agent
	irritation,eye damage	Aluminum paste / Polyoxyethylene nonylphenyl ether
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	nausea,vomiting	Glycerine
	gastric disturbances	Coloring agent
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 3	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)

：Aluminum paste / Additive / 2-Propanol, 1-methoxy- / Glycerine

EU labeling

F;R15-17	Aluminum paste
R10	2-Propanol, 1-methoxy-

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Aluminum paste / 2-Propanol, 1-methoxy-

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

The information contained in this sheet are based knowledge of the products at the data：(May 22, 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-1MR Gold [uni 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 : May 22, 2009
Revision Date
File No. : 010322A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Glycerine	56-81-5	Registered	2002895	< 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.

<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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

Technical measures	:	Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition	:	Avoid direct sunlight.
	:	Do not leave the products in high temperature space.
	:	Recommended temperature: 0-30 C.
Incompatible products	:	(Information of components.)

oxidizing materials	Resin / 2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Glycerine / Coloring agent
ACGIH	10mg/m3 TWA (metal particulate)	Aluminum paste
	10mg/m3 TWA(Nuisance particulate)	Additive / Glycerine / Coloring agent
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low 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. [2-Propanol, 1-methoxy-/ 32 C]
Auto ignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.

[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]

Density	: about 1.1 / 25 C
Vapor density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water	: Soluble.
Evaporation rate	: Not available. [2-Propanol, 1-methoxy-/ 0.7]
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.)

oxidizing materials	Resin / 2-Propanol, 1-methoxy- / Coloring agent / Polyoxyethylene nonylphenyl ether
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine
oxides of nitrogen, miscellaneous decomposition products.	Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>5000mg/kg-Rat	Aluminum paste
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	4090mg/kg-Mouse	Glycerine
	≧5000mg/kg-Rat	Coloring agent
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

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 liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Coloring agent / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
	redness,swelling	Coloring agent
Eye contact	irritation	Resin / Additive
	irritation,eye damage	Aluminum paste
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
	irritation,eye damage	Polyoxyethylene nonylphenyl ether
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	nausea,vomiting	Glycerine / Coloring agent
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether

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 / Additive / 2-Propanol, 1-methoxy- / Glycerine

EU labeling

F;R15-17	Aluminum paste
R10	2-Propanol, 1-methoxy-

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over	Aluminum paste / 2-Propanol, 1-methoxy-

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：(May 22, 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-1MR Silver [uni 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 : May 22, 2009
Revision Date
File No. : 010323A Rev. 2.5.01.01

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	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Resins	Registered	Registered	Registered Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	< 10
Additives	Registered	Registered	Registered Polymer	< 10
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Glycerine	56-81-5	Registered	2002895	< 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.

<Aluminum paste>
MAJOR HEALTH HAZARDS: Causes respiratory tract irritation. May be iritating 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.

<2-Propanol, 1-methoxy->
MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation
PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. May form peroxides during prolonged storage.

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 1.9g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam.
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: The Products is no flammable. Use extinguishing agents appropriate for surrounding fire. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Wipe off by dry cloth and wash with water.
	:	In accordance with national, state and local regulations.

7. HANDLING AND STORAGE

Store and handle in accordance with all current regulations and standards.
Keep separated from incompatible substances.

Handling:

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

Storage:

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

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

Incompatible products : (Information of components.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(respirable fraction), 15mg/m3(total dust)	Aluminum paste / Additive / Glycerine
ACGIH	10mg/m3 TWA(Nuisance particulate)	Resin / Additive / Glycerine
	10mg/m3 TWA (metal perticulate)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
EC	100ppm	2-Propanol, 1-methoxy-

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Low viscous liquid.
Colour : Silver.
Odour : Faint odor.
pH : about 8.3
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature : Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits : Not applicable.
[Lower flammable limit / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density : about 1.1 / 25 C
Vapour density (air=1) : Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubility in water : Soluble.
Evaporation rate : Not available. [2-Propanol, 1-methoxy-/ 0.7]
Volatile : 75-78%

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.)

combustible materials, halo carbons, halogens, oxidizing materials, acids	Resin
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste
acids, strong oxidizers	Additive
oxidizing materials	2-Propanol, 1-methoxy- / Polyoxyethylene nonylphenyl ether
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents	Glycerine

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
acrolein, aldehydes.	Resin
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive / Glycerine

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	>3000mg/kg-Rat	Resin
	>5000mg/kg-Rat	Aluminum paste
	19500mg/kg-Rat	Additive
	5000mg/kg-Dog, 11700mg/kg-Mouse	2-Propanol, 1-methoxy-
	4090mg/kg-Mouse	Glycerine
	1310mg/kg-Rat	Polyoxyethylene nonylphenyl ether
Inhalation LC50	12000mg/kg-Mouse	Resin
	11000mg/m3-6H	Additive
	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
	>570mg/m3-1H-Rat	Glycerine
Skin LD50	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>10000mg/kg-Rabbit	Glycerine
	2ml/kg-Rabbit	Polyoxyethylene nonylphenyl ether

Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;eye	Polyoxyethylene nonylphenyl ether

Chronic toxicity and long term toxicity

Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste
The liquid defats the skin.	2-Propanol, 1-methoxy-

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation	Resin / Polyoxyethylene nonylphenyl ether
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	irritation,difficulty breathing	Glycerine
Skin contact	irritation	Resin / Additive / Polyoxyethylene nonylphenyl ether
	irritation,itching	Aluminum paste
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Glycerine
Eye contact	irritation	Resin / Additive
	irritation,eye damage	Aluminum paste / Polyoxyethylene nonylphenyl ether
	irritation,tearing	2-Propanol, 1-methoxy-
	tearing,stinging	Glycerine
Ingestion	irritation,digestive disorders	Aluminum paste
	diarrhea	Additive
	difficulty breathing,nausea	2-Propanol, 1-methoxy-
	nausea,vomiting	Glycerine
	digestive disorders,diarrhea	Polyoxyethylene nonylphenyl ether
Specific effects	IARC Group 3	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

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