Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-1M Black

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 : October 17, 2003
File No. : 010140A Rev. 2.1.01.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	77-80
	Carbon black	1333-86-4	8-11
	Resins	Registered	8-11
	Ethylene glycol	107-21-1	1- 4
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.

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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, Bromates, chlorates, nitrate, strong oxidizers <Carbon black>
oxidizing materials, strong oxidizers <Resin>
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 : 3.5mg/m3 <Carbon black>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
ACGIH : 3.5mg/m3(total dust) <Carbon black>
: 100mg/m3 ceiling (particulate)(aerosol) <Ethylene glycol>

EC : 3.5mg/m3 <Carbon black>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: liquid.
Colour	: Black.
Odour	: Faint odour.
pH	: 8.2±1.0
Boiling point	: Not available. [Water / 100 C]
Melting point	: < -10 C
Flash point	: Not applicable. [Ethylene glycol / 120 C(CC)]
Autoignition temperature	: Not applicable. [Ethylene glycol / 404 C]
Explosion limits (vol %)	: Not applicable.
[Lower flammable limit / 3.2%, Upper flammable limit / 15.3% <Ethylene glycol >]	
Vapour density (air=1)	: Not available. [Ethylene glycol / 2.1]
Density	: 1.07±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate	: Not available.
Volatile (%)	: 81-84%

10. STABILITY AND REACTIVITY

Stability : Stability.
Hazardous reactions : Will not occur.
Conditions to avoid : May burn dose not ignite ready. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials
Materials to avoid : (Information of components.)
oxidizing materials, halogens, Bromates, chlorates, nitrate, strong oxidizers <Carbon black>
oxidizing materials, strong oxidizers <Resin>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of sulfur <Carbon black>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity
Ingestion LD50 : 10000mg/kg-Rat <Carbon black>
: 4700mg/kg-Rat,1650mg/kg-Cat <Ethylene glycol>
Inhalation LC50 : 10876mg/kg-Rat <Ethylene glycol>
Skin LD50 : >3000mg/kg-Rabbit <Carbon black>
: 9530uL/kg-Rabbit <Ethylene glycol>

Local effects : Irritant; inhalation, skin <Carbon black>
: Irritant; inhalation, skin, eyes, upper blonci <Ethylene glycol>

Chronic toxicity and long term toxicity
: respiratory disorders. <Carbon black>
: liver, centra nervous system <Ethylene glycol>

Signs and Symptoms of overexposure and aggravated by exposure

Inhalation	: irritation <Carbon black> <Resin>
	: irritation, cough <Ethylene glycol>
Skin contact	: irritation <Carbon black> <Resin>
	: irritation, dry <Ethylene glycol>
Eye contact	: irritation, discoloration of lids <Carbon black>
	: irritation <Resin>
	: irritation, redness <Ethylene glycol>
Ingestion	: nausea, vomiting <Ethylene glycol>
Specific effects	: IARC group 2B <Carbon black>

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>
EU rabeling
: 25%<=Xn;R22 (R22: Harmful if swallowed) <Ethylene glycol>
CANADA Hazardous Products Act - Ingredient Disclosure List
: 1% over <Carbon black> <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 : (October 17, 2003). 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-1M Red

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 : October 17, 2003
File No. : 010141A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	68-71
	Resins	Registered	8-11
	Titanium dioxide	13463-67-7	8-11
	Coloring agent	Registered	5- 8
	Ethylene glycol	107-21-1	2- 5
	Ethyl alcohol	64-17-5	1- 4
Other parts	: Other parts are excluded from 'chemical substances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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, strong oxidizers <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>
ACGIH : 10mg/m3 <Titanium dioxide>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>
EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Red.
Odour	: Faint odour.
pH	: 8.6±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3% , Upper flammable limit / 19.0% <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.10±0.03/25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 73-76%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. 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, strong oxidizers <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin>
oxides of nitrogen. <Coloring agent>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: >20000mg/kg-Rat <Coloring agent>
	: 1650mg/kg-Cat, 7500mg/kg-Mouse <Ethylene glycol>
	: 3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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

: Central nervous system depressant. <Ethylene glycol>

: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, coughing <Titanium dioxide, Ethylene glycol, Ethyl alcohol>
	: headache, nausea <Resin>
	: irritation <Coloring agent>
Skin contact	: irritation <Resin>
	: redness, swelling of skin <Coloring agent>
	: irritation, redness <Ethylene glycol>
	: irritation, rash, burn, eczema <Ethyl alcohol>
Eye contact	: redness <Titanium dioxide>
	: irritation <Resin>
	: irritation, redness <Ethylene glycol>
	: irritation, tearing, burn <Ethyl alcohol>
Ingestion	: Physiologically inert, Intestinal obstruction <Titanium dioxide>
	: fever, nausea <Coloring agent>
	: nausea, vomiting <Ethylene glycol>
	: rash, vomiting, digestive disorders <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Blue

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 : October 17, 2003
File No. : 010142A Rev. 2.1.01.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	67-70
	Titanium dioxide	13463-67-7	12-15
	Resins	Registered	7-10
	Coloring agent	Registered	5- 8
	Ethylene glycol	107-21-1	1- 4
	2-Propanol	67-63-0	< 2
	Ethyl alcohol	64-17-5	< 2
Other parts	: Other parts are excluded from 'chemical substances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

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

Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition : Avoid direct sunlight.
: Do not leave the products in high temperature space
: Recommended temperature : 0-30 C.
Incompatible products : (Information of components.)
metals <Titanium dioxide>
oxidizing materials <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts <2-Propanol>
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(Total dust) <Titanium dioxide>
: 5mg/m3(inhalable), 15mg/m3(total) <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 400ppm (980mg/m3) TWA, 500ppm (1230mg/m3) STEL <2-Propanol>
: 1000ppm,1900mg/m3 TWA <Ethyl alcohol>

ACGIH : 10mg/m3 <Titanium dioxide>
: 10mg/m3(nuisance dust) <Coloring agent>
: 100mg/m3 ceiling (particulate)(aerosol) <Ethylene glycol>
: 400ppm TWA, 500ppm STEL <2-Propanol>
: 1000ppm,1880mg/m3 TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: liquid.
Colour	: Blue.
Odour	: Faint odour.
pH	: 8.1±0.4
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flash point	: Not applicable. [2-Propanol / 11.7 C]
Autoignition temperature	: Not applicable. [2-Propanol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 2.0%, Upper flammable limit / 12.0% <2-Propanol >]
Vapour density (air=1)	: Not available. [2-Propanol / 2.07]
Density	: 1.13±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate	: Not available.
Volatile (%)	: 72-75%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : May burn dose not ignite ready. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials

Materials to avoid : (Information of components.)
metals <Titanium dioxide>
oxidizing materials <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
acids, metals, oxidizing materials, combustible materials, halogens, peroxides, bases, metal salts <2-Propanol>
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>
	:	4700mg/kg-Rat,1650mg/kg-Cat <Ethylene glycol>
	:	3600mg/kg-Mouse <2-Propanol>
	:	3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	:	6820mg/m3-4h-Rat <Titanium dioxide>
	:	10876mg/kg-Rat <Ethylene glycol>
	:	11100ppm-4h-Mouse <2-Propanol>
	:	20000ppm-10h-Rat <Ethyl alcohol>
Skin LD50	:	9530uL/kg-Rabbit <Ethylene glycol>
	:	12800mg/kg Rabbit <2-Propanol>
Local effects	:	Irritant; inhalation, skin, eyes, upper blonci <Ethylene glycol>
	:	Irritant; inhalation, eyes <2-Propanol>
	:	Irritant; inhalation, skin, eyes <Ethyl alcohol>

Chronic toxicity and long term toxicity
: liver, centra nervous system <Ethylene glycol> <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>
	:	irritation, nausea <2-Propanol>
Skin contact	:	irritation <Resin>
	:	irritation, dry <Ethylene glycol> <Ethyl alcohol>
	:	irritation, absorption <2-Propanol>
Eye contact	:	irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	:	irritation <Coloring agent> <Resin>
	:	irritation, pain <2-Propanol>
Ingestion	:	physiologically inert, intestinal obstruction <Titanium dioxide>
	:	gastric disturbances <Coloring agent>
	:	digestive discomfort <Resin>
	:	nausea, vomiting <Ethylene glycol>
	:	nausea, stomach pain <2-Propanol>
	:	rash, vomiting <Ethyl alcohol>

Specific effects	:	IARC group 3 <Titanium dioxide> <2-Propanol>
	:	IARC group 1 (alcohol beverage) <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)
: <Ethylene glycol> <2-Propanol> <Ethyl alcohol>
EU rabeling
: 25%<=Xn;R22 <Ethylene glycol>
: F;R11, 20%<=Xi;R36, R67 <2-Propanol>
: F;R11 <Ethyl alcohol>
R11 : Highly flammable.
R22 : Harmful if swallowed.
R36 : Irritating to eyes.
R67 : Vapours may cause drowsiness and dizziness.
CANADA Hazardous Products Act - Ingredient Disclosure List
: 1% over <Ethylene glycol> <2-Propanol>
: 0.1% over <Ethyl alcohol>

Hazard and safety information
Products are manufactured in accordance with European regulation EN71 part 3
Products are manufactured in accordance with ELV directive of EU.

16. OTHER INFORMATION

This sheet completes the technical sheet of use but it doesn't replace it.
The information contained in this sheet are based knowledge of the products at the data : (October 17, 2003). 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-1M Green

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 : October 17, 2003
File No. : 010143A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	67-70
	Titanium dioxide	13463-67-7	10-13
	Resins	Registered	8-11
	Coloring agents	Registered	5- 8
	Ethylene glycol	107-21-1	2- 5
	Ethyl alcohol	64-17-5	1- 4
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>
Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 15mg/m3 (nuisance dust) <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>

ACGIH : 10mg/m3 <Titanium dioxide>
: 10mg/m3 (nuisance dust) <Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Green.
Odour	: Faint odour.
pH	: 8.7±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3%, Upper flammable limit / 19.0% <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.14±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 72-75%

10. STABILITY AND REACTIVITY

Stability : Stability.
Hazardous reactions : Will not occur.
Conditions to avoid : May burn dose not ignite ready. 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, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin, Coloring agent>
cyanide, 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>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	: 3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos 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>
	: irritation, redness <Coloring agent>
	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Coloring agent> <Resin>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: gastric disturbances <Coloring agent>
	: digestive discomfort <Resin>
	: nausea, vomiting <Ethylene glycol>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted
UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Light green

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 : October 17, 2003
File No. : 010144A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	62-65
	Titanium dioxide	13463-67-7	21-24
	Resins	Registered	6- 9
	Coloring agents	Registered	1- 4
	Ethylene glycol	107-21-1	1- 4
	Ethyl alcohol	64-17-5	1- 4
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.7g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 15mg/m3 (nuisance dust) <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>

ACGIH : 10mg/m3 <Titanium dioxide>
: 10mg/m3 (nuisance dust) <Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Light green.
Odour	: Faint odour.
pH	: 8.5±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3%, Upper flammable limit / 19.0% <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.21±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 68-71%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin, Coloring agent>
cyanide, 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>
	: 3450mg/kg-Mouse <Ethyl alcohol>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, cough <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: headache, nausea <Resin>
	: irritation <Coloring agent>
Skin contact	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
	: irritation, redness <Coloring agent>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin, Coloring agent>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: nausea, vomiting <Ethylene glycol>
	: gastric disturbances <Coloring agent>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Violet

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 : October 17, 2003
File No. : 010145A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	66-69
	Resins	Registered	14-17
	Titanium dioxide	13463-67-7	10-13
	Ethylene glycol	107-21-1	2- 5
	Coloring agents	Registered	1- 4
	Ethyl alcohol	64-17-5	< 2
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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, strong oxidizers <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>
ACGIH : 10mg/m3 <Titanium dioxide>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>
EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Violet.
Odour	: Faint odour.
pH	: 8.3±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
[Lower flammable limit / 3.3% , Upper flammable limit / 19.0% <Ethyl alcohol>]	
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.11±0.03/25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 71-74%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

Conditions to avoid : May burn dose not ignite ready. 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, strong oxidizers <Resin, Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
other organic compounds. <Resin>
miscellaneous decomposition products <Coloring agent>
oxides of nitrogen,hydrogen cyanide,formaldehyde,acrolein and

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: 1000mg/kg-Mouse <Resin>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	: 3450mg/kg-Mouse <Ethyl alcohol>
	: 2950mg/kg-Mouse <Coloring agent>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, cough <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: headache, nausea <Resin>
	: irritation <Coloring agent>
Skin contact	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
	: irritation, redness <Coloring agent>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin> <Coloring agent>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: nausea, vomiting <Ethylene glycol>
	: gastric disturbances <Coloring agent>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Yellow

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 : October 17, 2003
File No. : 010146A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	69-72
	Titanium dioxide	13463-67-7	9-12
	Resins	Registered	7-10
	Coloring agent	Registered	5- 8
	Ethylene glycol	107-21-1	1- 4
	Ethyl alcohol	64-17-5	1- 4

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.5g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>
: 15mg/m3 <Coloring agent>

ACGIH : 10mg/m3 <Titanium dioxide, Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Yellow.
Odour	: Faint odour.
pH	: 8.6±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3% , Upper flammable limit / 19.0% <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.12±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 74-77%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin> <Coloring agent>
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>
	:	1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	:	3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	:	6820mg/m3-4H-Rat <Titanium dioxide>
	:	10876mg/kg-Rat <Ethylene glycol>
	:	20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	:	headache, nausea <Resin>
	:	irritation <Coloring agent>
	:	irritation, cough <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
Skin contact	:	irritation <Resin>
	:	redness, swelling <Coloring agent>
	:	irritation, dry <Ethylene glycol> <Ethyl alcohol>
Eye contact	:	irritation <Resin>
	:	irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
Ingestion	:	physiologically inert, intestinal obstruction <Titanium dioxide>
	:	digestive discomfort <Resin>
	:	nausea, vomiting <Coloring agent> <Ethylene glycol>
	:	rash, vomiting <Ethyl alcohol>
Specific effects	:	IARC group 3 <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

International regulations : Not restricted
UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Orange

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 : October 17, 2003
File No. : 010147A Rev. 2.1.06.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	66-69
	Titanium dioxide	13463-67-7	13-16
	Resins	Registered	8-11
	Coloring agents	Registered	3- 6
	Ethylene glycol	107-21-1	2- 5
	Ethyl alcohol	64-17-5	1- 4

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.5g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 15mg/m3 <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>

ACGIH : 10mg/m3 <Titanium dioxide, Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Orange.
Odour	: Faint odour.
pH	: 8.8±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 14 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 392 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3 , Upper flammable limit / 19.0 <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.13±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 72-75%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin>
oxides of nitrogen. <Coloring agent>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: >=5000mg/kg-Rat <Coloring agent>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	: 3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos 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>
	: redness, swelling <Coloring agent>
	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: nausea, vomiting <Coloring agent> <Ethylene glycol>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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.

 Creation Date : October 17, 2003

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: PC-1M Pink

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 : October 17, 2003
File No. : 010148A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	63-66
	Titanium dioxide	13463-67-7	15-18
	Resins	Registered	12-15
	Ethylene glycol	107-21-1	2- 5
	Ethyl alcohol	64-17-5	< 2
	Coloring agents	Registered	< 1
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.5g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>
: 15mg/m3 (nuisance dust) <Coloring agent>

ACGIH : 10mg/m3 <Titanium dioxide, Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Pink.
Odour	: Faint odour.
pH	: 8.3±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 14 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 392 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3 , Upper flammable limit / 19.0 <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.16±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 69-72%

10. STABILITY AND REACTIVITY

Stability : Stability.
Hazardous reactions : Will not occur.

Conditions to avoid : May burn dose not ignite ready. 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
oxides of nitrogen, cyanides, aldehydes, acrolein,
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>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	: 2950mg/kg-Mouse <Coloring agent>
	: 3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, cough <Titanium dioxide> <Resin> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Coloring agent>
Skin contact	: irritation, mechanical abration <Resin>
	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
	: redness, swelling <Coloring agent>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: nausea, vomiting <Ethylene glycol> <Coloring agent>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M Light blue

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 : October 17, 2003
File No. : 010149A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	61-64
	Titanium dioxide	13463-67-7	23-26
	Resins	Registered	6- 9
	Ethyl alcohol	64-17-5	1- 4
	Ethylene glycol	107-21-1	1- 4
	2-Propanol	67-63-0	< 2
	Coloring agent	Registered	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.7g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

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

Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition : Avoid direct sunlight.
: Do not leave the products in high temperature space
: Recommended temperature : 0-30 C.
Incompatible products : (Information of components.)
metals <Titanium dioxide>
oxidizing materials <Resin> <Coloring agent>
halo carbons, metals, metal salts, 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(Total dust) <Titanium dioxide>
: 5mg/m3(inhalable), 15mg/m3(total) <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000ppm,1900mg/m3 TWA <Ethyl alcohol>
: 400ppm (980mg/m3) TWA, 500ppm (1230mg/m3) STEL <2-Propanol>
ACGIH : 10mg/m3 <Titanium dioxide>
: 1000ppm,1880mg/m3 TWA <Ethyl alcohol>
: 100mg/m3 ceiling (particulate)(aerosol) <Ethylene glycol>
: 400ppm TWA, 500ppm STEL <2-Propanol>
: 10mg/m3(nuisance dust) <Coloring agent>
EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Light blue.
Odour	: Faint odour.
pH	: 8.4±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [2-Propanol / 11.7 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 2.0% , Upper flammable limit / 8.0% <2-Propanol>]
Vapour density (air=1)	: Not available. [2-Propanol / 2.07]
Density	: 1.23±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available. [2-Propanol / 2.88]
Volatile (%)	: 67-70%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials
Materials to avoid	: (Information of components.)

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

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin>
oxides of nitrogen. <Coloring agent>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: 3450mg/kg-Mouse <Ethyl alcohol>
	: 1650mg/kg-Cat, 7500mg/kg-Mouse <Ethylene glycol>
	: 3600mg/kg-Mouse <2-Propanol>
	: >5000mg/kg-Rat <Coloring agent>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 20000ppm(10hours)-Rat <Ethyl alcohol>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 11100ppm(4hours)-Mouse <2-Propanol>
Skin LD50	: 9530uL/kg-Rabbit <Ethylene glycol>
	: 12800mg/kg-Rabbit <2-Propanol>

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

Chronic toxicity and long term toxicity
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>
: Kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies. <2-Propanol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, cough <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: headache, nausea <Resin>
	: irritation, nausea <2-Propanol>
	: irritation <Coloring agent>
Skin contact	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
	: irritation, absorption <2-Propanol>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin> <Coloring agent>
	: irritation, pain <2-Propanol>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: rash, vomiting <Ethyl alcohol>
	: nausea, vomiting <Ethylene glycol>
	: nausea, stomach pain <2-Propanol>
	: gastric disturbances <Coloring agent>
Specific effects	: IARC group 3 <Titanium dioxide> <2-Propanol>
	: IARC group 1 (alcohol beverage) <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

International regulations : Not restricted
UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol, 2-Propanol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>
: F;R11, Xi;R36, R67 <2-Propanol>

R11: Highly flammable.
R22: Harmful if swallowed.
R36: Irritating to eye.
R67: Vapours may cause drowsiness and dizziness.

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 : (October 17, 2003). 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-1M Brown

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 : October 17, 2003
File No. : 010150A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	67-70
	Titanium dioxide	13463-67-7	10-13
	Resins	Registered	7-10
	Coloring agents	Registered	5- 8
	Ethylene glycol	107-21-1	1- 4
	Ethyl alcohol	64-17-5	1- 4
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.5g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust) <Titanium dioxide>
: 5mg/m3(inhalable), 15mg/m3(total) <Coloring agent>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 1000 ppm (1900 mg/m3) TWA <Ethyl alcohol>

ACGIH : 10mg/m3 <Titanium dioxide>
: 10mg/m3(nuisance dust) <Coloring agent>
: 100mg/m3 ceiling (particulate) <Ethylene glycol>
: 1000 ppm TWA <Ethyl alcohol>

EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Brown.
Odour	: Faint odour.
pH	: 8.7±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [Ethyl alcohol / 13 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 3.3% , Upper flammable limit / 19.0% <Ethyl alcohol>]
Vapour density (air=1)	: Not available. [Ethyl alcohol / 1.59]
Density	: 1.12±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available.
Volatile (%)	: 73-76%

10. STABILITY AND REACTIVITY

Stability	: Stability.
Hazardous reactions	: Will not occur.
Conditions to avoid	: May burn dose not ignite ready. 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>
oxidizing materials, strong oxidizers <Coloring agent>
oxidizing materials, bases, acids, reducing agents, metals <Ethylene glycol>
halo carbons, metals, metal salts, oxidizing materials, halogens, peroxides, acids, metal oxides, bases, combustible materials <Ethyl alcohol>

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
oxides of titanium. <Titanium dioxide>
miscellaneous decomposition products <Resin>
oxides of nitrogen. <Coloring agent>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: >5000mg/kg-Rat <Coloring agent>
	: 1650mg/kg-Cat, 4700mg/kg-Rat <Ethylene glycol>
	: 3450mg/kg-Mouse <Ethyl alcohol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 20000ppm(10hours)-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
: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>

Signs and Symptos 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>
	: redness, swelling <Coloring agent>
	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
Eye contact	: irritation <Resin> <Coloring agent>
	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: gastric disturbances <Coloring agent>
	: nausea, vomiting <Ethylene glycol>
	: rash, vomiting <Ethyl alcohol>
Specific effects	: IARC group 3 <Titanium dioxide> <2-Propanol>
	: IARC group 1 (alcohol beverage) <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

International regulations : Not restricted

UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>

R11: Highly flammable.
R22: Harmful if swallowed.

CANADA Hazardous Products Act - Ingredient Disclosure List
: 0.1% over <Ethyl alcohol>
: 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 : (October 17, 2003). 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-1M White

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 : October 17, 2003
File No. : 010151A Rev. 2.1.05.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	59-62
	Titanium dioxide	13463-67-7	26-29
	Resins	Registered	6- 9
	Ethyl alcohol	64-17-5	1- 4
	Ethylene glycol	107-21-1	1- 4
	2-Propanol	67-63-0	< 2
Other parts	: Other parts are excluded from 'chemical susbstances'.		

3. HAZARDS IDENTIFICATION

Most important hazards : Not available
Specific hazards : Not available

4. FIRST-AID MEASURES

Inhalation:
Not applicable.
(Due to its low vapor pressure. Inhalation is unlikery 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:
Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:
If swallowed, seek medical adivice, and show the MSDS to the physician then.
[Ink quanity of product : about 2.5g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable : regular dry chemical, carbon dioxide, water, regular foam.
Large fires : Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

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

Storage:

Technical measures : Keep away from oxidizing materials, ignition sources and high temperature.
Storage condition : Avoid direct sunlight.
: Do not leave the products in high temperature space
: Recommended temperature : 0-30 C.
Incompatible products : (Information of components.)
metals <Titanium dioxide>
oxidizing materials <Resin>
halo carbons, metals, metal salts, 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(Total dust) <Titanium dioxide>
: 1000ppm,1900mg/m3 TWA <Ethyl alcohol>
: 50ppm(125mg/m3)ceiling <Ethylene glycol>
: 400ppm (980mg/m3) TWA, 500ppm (1230mg/m3) STEL <2-Propanol>
ACGIH : 10mg/m3 <Titanium dioxide>
: 1000ppm,1880mg/m3 TWA <Ethyl alcohol>
: 100mg/m3 ceiling (particulate)(aerosol) <Ethylene glycol>
: 400ppm TWA, 500ppm STEL <2-Propanol>
: 10mg/m3(nuisance dust) <Coloring agent>
EC : 6mg/m3 <Titanium dioxide>
: 52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL <Ethylene glycol>
: 1000ppm,1900mg/m3 <Ethyl alcohol>

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: Low viscous liquid.
Colour	: White.
Odour	: Faint odour.
pH	: 8.4±1.0
Boiling point	: Not available. [Ethyl alcohol / 78 C]
Melting point	: < -10 C
Flashpoint	: Not applicable. [2-Propanol / 11.7 C]
Autoignition temperature	: Not applicable. [Ethyl alcohol / 363 C]
Explosion limits (vol %)	: Not applicable.
	[Lower flammable limit / 2.0% , Upper flammable limit / 8.0% <2-Propanol>]
Vapour density (air=1)	: Not available. [2-Propanol / 2.07]
Density	: 1.26±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate (Butyl acetate =1)	: Not available. [2-Propanol / 2.88]
Volatile (%)	: 64-67%

10. STABILITY AND REACTIVITY

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

Materials to avoid : (Information of components.)

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

Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
Hazardous fumes of titanium oxide. <Titanium dioxide>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	: >24000mg/kg-Rat <Titanium dioxide>
	: 3450mg/kg-Mouse <Ethyl alcohol>
	: 1650mg/kg-Cat, 7500mg/kg-Mouse <Ethylene glycol>
	: 3600mg/kg-Mouse <2-Propanol>
Inhalation LC50	: 6820mg/m3-4H-Rat <Titanium dioxide>
	: 20000ppm(10hours)-Rat <Ethyl alcohol>
	: 10876mg/kg-Rat <Ethylene glycol>
	: 11100ppm(4hours)-Mouse <2-Propanol>
Skin LD50	: 9530uL/kg-Rabbit <Ethylene glycol>
	: 12800mg/kg-Rabbit <2-Propanol>

Local effects

: Irritant; inhalation, skin, eye <Ethylene glycol, Ethyl alcohol>
: Irritant: inhalation, eye <2-Propanol>

Chronic toxicity and long term toxicity

: Central nervous system depressant. <Ethylene glycol>
: Central nervous system depressant, kidney disorders, liver disorders. <Ethyl alcohol>
: Kidney disorders, liver disorders, respiratory disorders, skin disorders and allergies. <2-Propanol>

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	: irritation, cough <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: headache, nausea <Resin>
	: irritation, nausea <2-Propanol>
Skin contact	: irritation, dry <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
	: irritation, absorption <2-Propanol>
Eye contact	: irritation, redness <Titanium dioxide> <Ethylene glycol> <Ethyl alcohol>
	: irritation <Resin>
	: irritation, pain <2-Propanol>
Ingestion	: physiologically inert, intestinal obstruction <Titanium dioxide>
	: digestive discomfort <Resin>
	: rash, vomiting <Ethyl alcohol>
	: nausea, vomiting <Ethylene glycol>
	: nausea, stomach pain <2-Propanol>
Specific effects	: IARC group 3 <Titanium dioxide> <2-Propanol>
	: IARC group 1 (alcohol beverage) <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

International regulations : Not restricted
UN classification number : Not applicable

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)
: <Titanium dioxide, Ethylene glycol, Ethyl alcohol, 2-Propanol>

EU rabeling : 25%≦Xn;R22 <Ethylene glycol>
: F;R11 <Ethyl alcohol>
: F;R11, Xi;R36, R67 <2-Propanol>

R11: Highly flammable.
R22: Harmful if swallowed.
R36: Irritating to eye.
R67: Vapours may cause drowsiness and dizziness.

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 : (October 17, 2003). 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-1M Gold

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 : October 17, 2003
File No. : 010152A Rev. 2.1.10.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	68-71
	Resins	Registered	11-14
	Aluminum paste	7429-90-5	4- 7
	2-Propanol, 1-methoxy-	107-98-2	3- 6
	Glycerin	56-81-5	2- 5
	Coloring agents	Registered	2- 5
	Additives	Registered	2- 5

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.

4. FIRST-AID MEASURES

Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikery 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:

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:

If swallowed, seek medical adivice, and show the MSDS to the physician then. [Ink quanity of product : about 2.4g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.

Extinguishing media:

Suitable	:	regular dry chemical, carbon dioxide, water, regular foam.
Large fires	:	Use regular foam or flood with fine water spray.

Fire fighting : The Product is no flammable.
Move container from fire area if it can be done without risk.
Useextinguishing agents appropriate for surrounding fire.
Avoidinhalation of material or combustion by-products.
Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

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

Storage:

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

Incompatible products : (Information of components.)
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbide <Aluminum paste>
oxidizing materials, strong oxidizers <Resin> <Coloring agent>
oxidizing materials <2-Propanol, 1-methoxy->
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents <Glycerin>
strong oxidizers <Additive>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)
OSHA : 15mg/m3(total dust),5mg/m3(respirable fraction), 5mg/m3 (pyro powders) <Aluminum paste>
: 100ppm, 369mg/m3 TWA, 150ppm, 553mg/m3 STEL <2-Propanol, 1-methoxy->
: 10mg/m3(total particulate), 15mg/m3(total dust), 5mg/m3(respirable dust fraction) <Glycerin>
: 15mg/m3 <Pigment orange>
ACGIH : 5mg/m3(pyro powders), 10mg/m3(metal particulate) <Aluminum paste>
: 100ppm, 369mg/m3 TWA, 150ppm, 553mg/m3 STEL <2-Propanol, 1-methoxy->
: 10mg/m3 <Glycerin>
: 10mg/m3 (nuisance dust) <Pigment orange>
EC : 100ppm, 375mg/m3 <2-Propanol, 1-methoxy->

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: liquid.
Colour	: Gold.
Odour	: Faint odour.
pH	: 8.0±1.0
Boiling point	: Not available. [Water / 100 C]
Melting point	: < -10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy- / 32 C(OC)]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy- / 270 C]
Explosion limits (vol %)	: Not applicable. [Lower flammable limit / 1.60 , Upper flammable limit / 13.80 < 2-Propanol, 1-methoxy- >]
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy- / 3.1]
Density	: 1.07±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate	: Not available.
Volatile (%)	: 76-79%

10. STABILITY AND REACTIVITY

Stability : Stability.
Hazardous reactions : Will not occur.
Conditions to avoid : May burn dose not ignite ready. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials
Materials to avoid : (Information of components.)
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbide <Aluminum paste>
oxidizing materials, strong oxidizers <Resin> <Coloring agent>
oxidizing materials <2-Propanol, 1-methoxy->
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents <Glycerin>
strong oxidizers <Additive>
Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
hydrocarbon gases, oxides of aluminum <Aluminum paste>
acrolein <Glycerin> <Additive>
oxides of nitrogen, miscellaneous decomposition products <Coloring agent>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity
Ingestion LD50 : >5000mg/kg-Rat <Aluminum paste>
: 5000mg/kg-Dog <2-Propanol, 1-methoxy->
: 4090mg/kg-Mouse <Glycerin>
: >=5000mg/kg-Rat <Coloring agent>
Inhalation LC50 : 10000ppm-5h-Rat <2-Propanol, 1-methoxy->
: >570mg/m3- 1h-Rat <Glycerin>
Skin LD50 : 13000mg/kg-Rabbit <2-Propanol, 1-methoxy->
: >10000mg/kg-Rabbit <Glycerin>

Local effects : Irritant; inhalation <Aluminum paste>
: Irritant; inhalation, skin, eyes <2-Propanol, 1-methoxy->
: Irritant; skin, eyes <Glycerin>
: Dehydration <Additive>

Chronic toxicity and long term toxicity
: Poisoning may affect the lungs and nervous system <Aluminum paste>
: Central nervous system depressant <2-Propanol, 1-methoxy->

Signs and Symptoms of overexposure and aggravated by exposure
Inhalation : irritation, cough <Aluminum paste>
: irritation <Resin> <Coloring agent>
: irritation, nausea <2-Propanol, 1-methoxy->
: irritation, difficulty breathing <Glycerin>
Skin contact : irritation, itching <Aluminum paste>
: irritation <Resin>
: irritation, dry <2-Propanol, 1-methoxy->
: irritation, redness <Glycerin>
: redness, swelling <Coloring agent>
: sensitization <Additive>

Eye contact : irritation, eye damage <Aluminum paste>
: irritation <Resin 6>
: irritation, tearing <2-Propanol, 1-methoxy->
: tearing, stinging <Glycerin>
Ingestion : irritation, digestive disorders <Aluminum paste>
: difficulty breathing, nausea <2-Propanol, 1-methoxy->
: nausea, vomiting <Glycerin> <Coloring agent>

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> <2-Propanol, 1-methoxy-> <Glycerin>
EU rabeling
: F;R15-17 <Aluminum paste>
: R10 <2-Propanol, 1-methoxy->
R10 : Flammable.
R15 : Contact with water liberates extremely flammable gases.
R17 : Spontaneously flammable in air.
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 : (October 17, 2003). 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-1M Silver

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 : October 17, 2003
File No. : 010153A Rev. 2.1.11.01

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation: Preparation

Chemical nature:

<Component parts>	<Chemical or generic name>	<CAS No.>	<Concentration range (wt%)>
Ink	Water	7732-18-5	70-73
	Resins	Registered	13-16
	Aluminum paste	7429-90-5	4- 7
	2-Propanol, 1-methoxy-	107-98-2	3- 6
	Glycerin	56-81-5	2- 5
	Additives	Registered	1- 4
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.

4. FIRST-AID MEASURES

Inhalation:

Not applicable.

(Due to its low vapor pressure. Inhalation is unlikery 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:

Wash eyes immediately with large amounts of water or normal saline, occasionally lifting upper and lower lids, until no evidence of chemical remains. (at least 15-20 minutes) Get medical attention immediately.

Ingestion:

If swallowed, seek medical adivice, and show the MSDS to the physician then. [Ink quanity 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 Product is no flammable.
		Move container from fire area if it can be done without risk.
		Useextinguishing agents appropriate for surrounding fire.
		Avoidinhalation of material or combustion by-products.
		Stay upwind and keep out of low areas.

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

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

Storage:

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

Incompatible products : (Information of components.)
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbide <Aluminum paste>
combustible materials, halo carbons, halogens, oxidizing materials, acids <Resin>
oxidizing materials <2-Propanol, 1-methoxy->
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents <Glycerin>
strong oxidizers <Additive>

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required

Control parameters (Information of components.)

OSHA : 15mg/m3(total dust),5mg/m3(respirable fraction), 5mg/m3 (pyro powders) <Aluminum paste>
: 100ppm, 369mg/m3 TWA, 150ppm, 553mg/m3 STEL <2-Propanol, 1-methoxy->
: 10mg/m3(total particulate), 15mg/m3(total dust), 5mg/m3(respirable dust fraction) <Glycerin>

ACGIH : 5mg/m3(pyro powders), 10mg/m3(metal particulate) <Aluminum paste>
: 100ppm, 369mg/m3 TWA, 150ppm, 553mg/m3 STEL <2-Propanol, 1-methoxy->
: 10mg/m3 <Glycerin>
: 10mg/m3(general dust) <Resin 9>

EC : 100ppm, 375mg/m3 <2-Propanol, 1-methoxy->

Personal protective equipment : Not required

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form	: liquid.
Colour	: Silver.
Odour	: None odour.
pH	: 8.0±1.0
Boiling point	: Not available. [Water / 100 C]
Melting point	: < -10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy- / 32 C(OC)]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy- / 270 C]
Explosion limits (vol %)	: Not applicable. [Lower flammable limit / 1.60 , Upper flammable limit / 13.80 < 2-Propanol, 1-methoxy- >]
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy- / 3.1]
Density	: 1.06±0.03 / 25 C
Solubility in water	: Soluble.
Evaporation rate	: Not available.
Volatile (%)	: 77-81%

10. STABILITY AND REACTIVITY

Stability : Stability.
Hazardous reactions : Will not occur.
Conditions to avoid : May burn dose not ignite ready. Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials
Materials to avoid : (Information of components.)
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbide <Aluminum paste>
combustible materials, halo carbons, halogens, oxidizing materials, acids <Resin>
oxidizing materials <2-Propanol, 1-methoxy->
acids, bases, oxidizing materials, metal oxides, peroxides, reducing agents <Glycerin>
strong oxidizers <Additive>
Hazardous decomposition products : (Information of components.)
oxides of carbon, water. < common decomposition products.>
hydrocarbon gases, oxides of aluminum <Aluminum paste>
acrolein, aldehydes <Resin>
acrolein <Glycerin> <Additive>

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity
Ingestion LD50 : >5000mg/kg-Rat <Aluminum paste>
: >3000mg/kg-Rat <Resin>
: 5000mg/kg-Dog <2-Propanol, 1-methoxy->
: 4090mg/kg-Mouse <Glycerin>
Inhalation LC50 : 12000mg/kg-Mouse <Resin>
: 10000ppm-5h-Rat <2-Propanol, 1-methoxy->
: >570mg/m3- 1h-Rat <Glycerin>
Skin LD50 : 13000mg/kg-Rabbit <2-Propanol, 1-methoxy->
: >10000mg/kg-Rabbit <Glycerin>
Local effects : Irritant; inhalation <Aluminum paste>
: Irritant; inhalation, skin, eyes <2-Propanol, 1-methoxy->
: Irritant; skin, eyes <Glycerin>
: Dehydration <Additive>

Chronic toxicity and long term toxicity
: Poisoning may affect the lungs and nervous system <Aluminum paste>
: Central nervous system depressant <2-Propanol, 1-methoxy->

Signs and Symptoms of overexposure and aggravated by exposure
Inhalation : Irritation, cough <Aluminum paste>
: Irritation <Resin>
: Irritation, nausea <2-Propanol, 1-methoxy->
: Irritation, difficulty breathing <Glycerin>
Skin contact : Irritation, itching <Aluminum paste>
: Irritation, burns <Resin>
: Irritation, dry <2-Propanol, 1-methoxy->
: Irritation, redness <Glycerin>
: Sensitization <Additive>

Eye contact : Irritation, eye damage <Aluminum paste>
: Irritation <Resin>
: Irritation, tearing <2-Propanol, 1-methoxy->
: Tearing, stinging <Glycerin>
Ingestion : Irritation, digestive disorders <Aluminum paste>
: Difficulty breathing, nausea <2-Propanol, 1-methoxy->
: Nausea, vomiting <Glycerin>

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)
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