Creation Date : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Blue [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067430A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

Creation Date : November 17, 2005
Revision Date : October 12, 2011

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	5mg/m3(Respirable flaction), 15mg/m3(Total dust) [Nuisance Dust]	Coloring agent
	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3 (pyro powders)	Aluminum paste
ACGIH	100mg/m3 ceiling (particulate)(aerosol)	Ethylene glycol
	10mg/m3(Nuisance particulate)	Coloring agent
	5mg/m3 TWA	Triethanolamine
	10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Blue.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubulity in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol

acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

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

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>5000mg/kg-Rat	Coloring agent / Aluminum paste
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol
Repeated or prolonged contact may cause skin sensitization.	Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	irritation,skin absorption	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation	Coloring agent
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin
	gastric disturbances	Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

Hazardous chemicals (OSHA HCS)

: Ethylene glycol / Triethanolamine / Aluminum paste

EU labeling

25%<=Xn;R22 : Ethylene glycol

F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information

Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Red [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067431A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.
Exitinguishing media:

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

Technical measures	:	Don't swallow ink.
	:	Recap after use.
	:	Don't shake.
	:	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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

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
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
JAIH	2mg/m3(Respirable fraction), 8mg/m3(Total dust)	Coloring agent
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Red.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubility in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
acid halides, oxides of nitrogen.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>=5000mg/kg-Rat	Coloring agent
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
	>5000mg/kg-Rat	Aluminum paste
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	redness,swelling	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin / Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Orange [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067432A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

Creation Date : November 17, 2005
Revision Date : October 12, 2011

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 PEL (Nuisance Dust) 15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3 (pyro powders)	Coloring agent Aluminum paste
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 10mg/m3(Nuisance particulate) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Coloring agent Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm)	Ethylene glycol
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Orange.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubility in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
acid halides, oxides of nitrogen.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>5000mg/kg-Rat	Coloring agent / Aluminum paste
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	allergic contact dermatitis	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin / Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Green [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067433A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:
If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 PEL (Nuisance Dust) 15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3 (pyro powders)	Coloring agent Aluminum paste
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 10mg/m3(Nuisance particulate) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Coloring agent Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Green.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubility in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
cyanide, oxides of nitrogen.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>=5000mg/kg-Rat	Coloring agent
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
	>5000mg/kg-Rat	Aluminum paste
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	irritation	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation	Coloring agent
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin
	gastric disturbances	Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling

25%<=Xn;R22 : Ethylene glycol

F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List

1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information

Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Violet [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067434A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.
Exitinguishing media:

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:

Technical measures	:	Don't swallow ink.
	:	Recap after use.
	:	Don't shake.
	:	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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

Creation Date : November 17, 2005
Revision Date : October 12, 2011

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
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
JAIH	2mg/m3(Respirable fraction), 8mg/m3(Total dust)	Coloring agent
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Violet.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubulity in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
miscellaneous decomposition products.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>=5000mg/kg-Rat	Coloring agent
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
	>5000mg/kg-Rat	Aluminum paste
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Pink [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067435A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:
If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

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
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
JAIH	2mg/m3(Respirable fraction), 8mg/m3(Total dust)	Coloring agent
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Pink.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubulity in water : Soluble.
Evaporation rate : Not available.
Volatile : 84-87%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
oxides of nitrogen, cyanides, aldehydes, ammonia, corrosive acrolein, various organic fragments	Resin
acid halides, oxides of nitrogen.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	1000mg/kg-Mouse	Resin
	2950mg/kg-Mouse	Coloring agent
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
	>5000mg/kg-Rat	Aluminum paste
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Resin / Aluminum paste
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	mechanical abrasion,irritation	Resin
	allergic contact dermatitis	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	irritation	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin / Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Resin / Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Gold [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067436A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
Coloring agents	Registered	Registered	Registered	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:

If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

OSHA	15mg/m3 PEL (Nuisance Dust) 15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3 (pyro powders)	Coloring agent Aluminum paste
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 10mg/m3(Nuisance particulate) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Coloring agent Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm) STEL	Ethylene glycol
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Gold.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubility in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin / Coloring agent
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
oxides of nitrogen, acid halides, halogenated compounds.	Coloring agent
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	>5000mg/kg-Rat	Coloring agent / Aluminum paste
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine

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

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	irritation	Coloring agent
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	allergic contact dermatitis	Coloring agent
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste

Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste
Ingestion	nausea,vomiting	Ethylene glycol / Resin / Coloring agent
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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 : November 17, 2005
Revision Date : October 12, 2011

Safety data sheet for chemical products

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120SP Silver [uni-ball Signo Sparkling]

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 : November 17, 2005
Revision Date : October 12, 2011
File No. : 067437A Rev. 2.5.03.04

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature: Component parts : Ink

Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
Ethylene glycol	107-21-1	Registered	2034733	10- 30
Additive	Registered	Registered	Polymer	< 10
Resins	Registered	Registered	Polymer	< 10
1,2-Propanediol	57-55-6	Registered	2003380	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 1

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

3. HAZARDS IDENTIFICATION

Most important hazards : Not available.

Specific hazards : Information of components.

<Ethylene glycol>

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

4. FIRST-AID MEASURES

Inhalation:

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

Skin contact:

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

Eye contact:

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

Ingestion:
If swallowed, seek medical advice, and show the MSDS to the physician then.
[Ink quantity of product : about 1.0-1.3g]

5. FIRE-FIGHTING MEASURES

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

6. ACCIDENTAL RELEASE MEASURES

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

7. HANDLING AND STORAGE

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

Handling:
Technical measures : Don't swallow ink.
: Recap after use.
: Don't shake.
: 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, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine
acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Packaging materials : Not applicable.

Creation Date : November 17, 2005
Revision Date : October 12, 2011

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
ACGIH	100mg/m3 ceiling (particulate)(aerosol) 5mg/m3 TWA 10mg/m3 TWA (metal perticulate), 5mg/m3 TWA (pyro powders)	Ethylene glycol Triethanolamine Aluminum paste
EC	52mg/m3(20ppm) TWA, 104mg/m3(40ppm)	Ethylene glycol
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[ ] : Information of components.

Physical state and form : Middle viscous liquid.
Colour : Silver.
Odour : None odour.
pH : about 8.2
Boiling point : Not available. [Water/ 100 C]
Melting point : <-10 C
Flash point : Not applicable. [1,2-Propanediol/ 99 C(CC)]
Autoignition temperature : Not applicable. [Triethanolamine/ 315.5 C]
Explosion limits : Not applicable.
[Lower flammable limit / 2.6% , Upper flammable limit / 12.5% <1,2-Propanediol>]
Density : about 1.2 / 25 C
Vapour density (air=1) : Not available. [1,2-Propanediol/ 2.60-2.62]
Solubility in water : Soluble.
Evaporation rate : Not available.
Volatile : 86-89%

10. STABILITY AND REACTIVITY

Stability : Stability.

Hazardous reactions : Will not occur.

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

Materials to avoid : (Information of components.)

oxidizing materials, bases, acids, reducing agents, metals	Ethylene glycol
strong oxidizers	Additive
oxidizing materials	Resin
acids, bases, combustible materials, halo carbons, metals, metal salts, oxidizing materials, reducing agents	1,2-Propanediol
acids, metals, oxidizing materials	Triethanolamine

acids, combustible materials, oxidizing materials, metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal carbides	Aluminum paste

Hazardous decomposition products : (Information of components.)

oxides of carbon, water	common decomposition products
corrosive acrolein.	Additive
cyanide compounds, ammonia.	Resin
oxides of nitrogen.	Triethanolamine
hydrocarbon gases, oxides of aluminum.	Aluminum paste

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	1650mg/kg-Cat, 4700mg/kg-Rat	Ethylene glycol
	6361mg/kg-Mouse	Resin
	20000mg/kg-Rat	1,2-Propanediol
	2200mg/kg-Rabbit, 5846mg/kg-Mouse	Triethanolamine
	>5000mg/kg-Rat	Aluminum paste
Inhalation LC50	>167mg/m3-4H-Rat	Resin
Skin LD50	9530uL/kg-Rabbit	Ethylene glycol
	>2100mg/kg-Rat	Resin
	20800mg/kg-Rabbit	1,2-Propanediol
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation, skin, eye	Ethylene glycol
	dehydration	Additive
	Irritant;skin, eye	Triethanolamine
	Irritant;inhalation	Aluminum paste

Chronic toxicity and long term toxicity

The substance may have effects on the central nervous system, resulting in abnormal eye movements (nystagmus).	Ethylene glycol
Repeated or prolonged contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
Lungs may be affected by repeated or prolonged exposure to dust particules. The substance may have effects on the nervous system, resulting in impaired functions.	Aluminum paste

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,cough	Ethylene glycol / Aluminum paste
	irritation,allergic reactions	Resin
	nausea,headache	1,2-Propanediol
	sore throat,difficulty breathing	Triethanolamine
Skin contact	irritation,dry	Ethylene glycol
	sensitization	Additive
	allergic reactions,burns	Resin
	irritation,allergic reaction	1,2-Propanediol
	irritation,redness	Triethanolamine
	irritation,itching	Aluminum paste
Eye contact	irritation,redness	Ethylene glycol
	burns	Resin
	irritation,pain	1,2-Propanediol
	irritation,corneal swelling	Triethanolamine
	irritation,eye damage	Aluminum paste

Ingestion	nausea,vomiting	Ethylene glycol / Resin
	allergic reaction,vomiting	1,2-Propanediol
	burns,gastrointestinal irritation	Triethanolamine
	irritation,digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Triethanolamine

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 : 960810

15. REGULATORY INFORMATION

Regulations (Information of components)

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

EU labeling
25%<=Xn;R22 : Ethylene glycol
F;R15-17 : Aluminum paste

CANADA Hazardous Products Act - Ingredient Disclosure List
1%over : Ethylene glycol / 1,2-Propanediol / Triethanolamine / Aluminum paste

Hazard and safety information
Products are manufactured in accordance with ISO 8124-3 " Safety of Toys - Part 3"

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 12, 2011). 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.