1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Blue [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067446A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

measures : Slight fire hazard.
dia:
: regular dry chemical, carbon dioxide, water, regular foam.
: Use regular foam or flood with fine water spray.
: 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 materi high temperature.	als, ignition sources and
Storage condition	: Avoid direct sunlight.	
Storage condition	: Do not leave the products in high	temperature space
	: Recommended temperature: 0-30	· ·
Incompatible products	: (Information of components.)	
1 I	le materials, halo carbons, metals,	1,2-Propanediol
	naterials, reducing agents	1,2 Tropaneuror
_	erials, oxidizing materials, metals,	Aluminum paste
	al oxides, halogens, reducing	- manifiant passe
	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

r or paramot	(intermetion of components)	
OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
	100ppm TWA, 150ppm STEL 5mg/m3 TWA	2-Propanol, 1-methoxy- Triethanolamine
EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

]: Information of components.

9. PHYSICAL AND CHEMICAL PROPERTIES

	1
Physical state and form	: Middle viscous liquid.
Colour	: Blue.
Odour	: None odour.
pH	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	z / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water	: Soluble.
Evaporation rate	: Not available.
Volatile	: 84-87%

10. STABILITY AND REACTIVITY

Stability Hazardous reactions	: Stability. : Will not occur.	
		6.
Conditions to avoid	: Avoid heat, flames, sparks and oth Avoid contact with incompatible m	0
Materials to avoid	: (Information of components.)	
acids, bases, combus	tible materials, halo carbons,	1,2-Propanediol
	oxidizing materials, reducing	
	aterials, oxidizing materials,	Aluminum paste
	oases, metal oxides, halogens,	
00	o carbons, peroxides, metal	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-
acids, metals, oxidizi	ng materials	Triethanolamine

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-UM-120NM Blue-

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: (Information of components.)

Hazardous decomposition products oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein. oxides of nitrogen.

common decomposition products Aluminum paste Additive Triethanolamine

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity		
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>2000mg/kg-Rat	Coloring agent
	>5000mg/kg-Rat	Aluminum paste
	>=5000mg/kg-Rat	Resin
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	11700mg/kg-Mouse	-
	2200mg/kg-Rabbit,	Triethanolamine
	5846mg/kg-Mouse	
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;skin, eye	Triethanolamine
	Ŭ	
Chronic toxicity and	0 0	
	contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
	by repeated or prolonged exposure to ubstance may have effects on the	Aluminum paste
-	-	
	ting in impaired functions.	2 Drenoval 1 mathemy
The liquid defats the s		2-Propanol, 1-methoxy-
The liquid defats the s		
The liquid defats the s	kin.	
The liquid defats the s Signs and Symptos o	^{kin.} f overexposure and aggravated by	y exposure
The liquid defats the s Signs and Symptos o	kin. f overexposure and aggravated by nausea,headache	y exposure 1,2-Propanediol
The liquid defats the s Signs and Symptos o	kin. f overexposure and aggravated by nausea,headache irritation,cough	y exposure 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos o	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos o Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the s Signs and Symptos o Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the s Signs and Symptos o Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos o Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive
The liquid defats the s Signs and Symptos o Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos o Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the s Signs and Symptos o Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the s Signs and Symptos o Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos o Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,itching sensitization irritation,redness irritation,redness irritation,pain irritation,eye damage irritation,tearing	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos o Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the s Signs and Symptos o Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,pain irritation,tearing irritation,tearing irritation,corneal swelling allergic reaction,vomiting	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the s Signs and Symptos o Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,pain irritation,tearing irritation,corneal swelling allergic reaction,vomiting irritation,digestive disorders	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste

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) : Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine

EU labeling	
F;R15-17	: Aluminum paste
Xi;R36,R38	: Resin
R10	: 2-Propanol, 1-methoxy-

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

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 : (April 27, 2006). 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 : Nov. 18, 2005 Revision Date : Apr. 27, 2006

1. PRODUCT AND COMPANY IDENTIFICATION

Product name:	UM-120NM Red	[uni-ball Signo NOBLE METAL]
Manufacture's name Address Telephone number Telex number		CO.,LTD. , SHINAGAWA, TOKYO, JAPAN Telefax number : 03-3450-0363
Creation Date Revision Date	: Nov. 18, 2005 : Apr. 27, 2006	

Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

: 067447A

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

File No.

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5. FIRE-FIGHTING MEASURES

Fire and explosion	measures : Slight fire hazard.
Exitinguishing me	dia:
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 mater	ials, ignition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
-	: Do not leave the products in high	n temperature space.
	: Recommended temperature: 0-30) C.
Incompatible products	: (Information of components.)	
acids, bases, combustib	le materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	naterials, reducing agents	
acids, combustible mate	erials, oxidizing materials, metals,	Aluminum paste
metal salts, bases, meta	al oxides, halogens, reducing	
agents, halo carbons, pe	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-/
		Coloring agent
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering m	easures : Not required.		
Control parame	eters (Information of components.)		
OSHA	15mg/m3(total dust), 5mg/m3(respirable Aluminum paste fraction), 5mg/m3(pyro powders)		
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste	
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-	
	5mg/m3 TWA	Triethanolamine	
EC	100ppm(375mg/m3) TWA,	2-Propanol, 1-methoxy-	
	150ppm(568mg/m3) STEL		
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	
Dorconol proto	stive equipment . Not required		

Personal protective equipment : Not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

[]: Information of co	omponents.
Physical state and form	: Middle viscous liquid.
Colour	: Red.
Odour	: None odour.
pH	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	z / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water	: Soluble.
Evaporation rate	: Not available.
Volatile	: 88-91%

10. STABILITY AND REACTIVITY

Stability Hazardous reactions		
Conditions to avoid	: Avoid heat, flames, sparks and ot Avoid contact with incompatible r	0
Materials to avoid	: (Information of components.)	
acids, bases, combus	tible materials, halo carbons,	1,2-Propanediol
metals, metal salts, o	oxidizing materials, reducing	
acids, combustible m	aterials, oxidizing materials,	Aluminum paste
metals, metal salts, l	oases, metal oxides, halogens,	
reducing agents, hal	o carbons, peroxides, metal	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-/
		Coloring agent
acids, metals, oxidizi	ng materials	Triethanolamine

-UM-120NM Red-

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Hazardous decomposition products oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein. oxides of nitrogen.

: (Information of components.) common decomposition products Aluminum paste Additive Triethanolamine / Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Acute toxicity		
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>5000mg/kg-Rat	Aluminum paste
	>=5000mg/kg-Rat	Resin / Coloring agent
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	2200mg/kg-Rabbit,	Triethanolamine
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;skin, eye	Triethanolamine
Chronic torrigity and	Ũ	
Chronic toxicity and		1.9 Dronou dial / Triathan alemina
	d contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
	d by repeated or prolonged exposure to ubstance may have effects on the	Aluminum paste
nervous system, resulting in impaired functions. The liquid defats the skin.		2 Proposal 1 methows
		2-Propanol, 1-methoxy-
Signs and Symptos of	of overexposure and aggravated by	-
Inhalation	nausea,headache	1,2-Propanediol
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	sore throat, difficulty breathing	Triethanolamine
	irritation	Coloring agent
Skin contact	irritation,allergic reaction	1,2-Propanediol
	imitation itabing	
	irritation, itching	Aluminum paste
	sensitization	Aluminum paste Additive
	0	
	sensitization	Additive
	sensitization irritation,dry	Additive 2-Propanol, 1-methoxy-
Eye contact	sensitization irritation,dry irritation,redness	Additive 2-Propanol, 1-methoxy- Triethanolamine
Eye contact	sensitization irritation,dry irritation,redness redness,swelling	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent
Eye contact	sensitization irritation,dry irritation,redness redness,swelling irritation,pain	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol
Eye contact	sensitization irritation,dry irritation,redness redness,swelling irritation,pain irritation,eye damage	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
Eye contact Ingestion	sensitization irritation,dry irritation,redness redness,swelling irritation,pain irritation,eye damage irritation,tearing	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
	sensitization irritation,dry irritation,redness redness,swelling irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
	sensitization irritation,dry irritation,redness redness,swelling irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling allergic reaction,vomiting	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
	sensitization irritation,dry irritation,redness redness,swelling irritation,pain irritation,eye damage irritation,tearing irritation,tearing allergic reaction,vomiting irritation,digestive disorders	Additive 2-Propanol, 1-methoxy- Triethanolamine Coloring agent 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste

Specific effects	IARC Group 3	Triethanolamine
Specific checks	in inter an oup o	1110011411014111110

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) : Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine

EU labelir	ıg	
F;R15-1	7	: Aluminum paste
Xi;R36,F	238	: Resin
R10		: 2-Propanol, 1-methoxy-
R10 :	Flammable.	
R15 :	Contact with water liberaters ext	remely flammable gases.
R17 :	Spontaneously flammable in air.	
R36 :	Irritating to eyes.	
R38 :	Irritating to skin.	
CANADA 1%over	Hazardous Products Act - Ing : 1,2-Propanediol / Aluminu	gredient Disclosure List m paste / 2-Propanol, 1-methoxy- / Triethanolamine
	afety information re manufactured in accordance wit	h 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 : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Green [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067448A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

Fire and explosion	measures : Slight fire hazard.
Exitinguishing med	dia:
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 materia	als, ignition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
	: Do not leave the products in high	
	: Recommended temperature: 0-30	C.
Incompatible products	•	
acids, bases, combustib	le materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	naterials, reducing agents	
acids, combustible mate	erials, oxidizing materials, metals,	Aluminum paste
metal salts, bases, meta	al oxides, halogens, reducing	
agents, halo carbons, pe	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control parameters (Information of components.)

nei or paramot	cits (innormation of components.)	
OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
	5mg/m3 TWA	Triethanolamine
EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

]: Information of components.

9. PHYSICAL AND CHEMICAL PROPERTIES

	1
Physical state and form	: Middle viscous liquid.
Colour	: Green.
Odour	: None odour.
pH	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	z / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
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	bid : Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.			
Materials to avoid	: (Information of components.)			
acids, bases, combustible materials, halo carbons, 1,2-Propanediol				
	oxidizing materials, reducing			
	aterials, oxidizing materials,	Aluminum paste		
	bases, metal oxides, halogens,			
reducing agents, hal	o carbons, peroxides, metal			
strong oxidizers Additive				
oxidizing materials		2-Propanol, 1-methoxy-		
acids, metals, oxidizi	ing materials	Triethanolamine		

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: (Information of components.)

common decomposition products Aluminum paste Additive Triethanolamine

Hazardous decomposition products oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein. oxides of nitrogen.

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity

Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>2000mg/kg-Rat	Coloring agent
	>5000mg/kg-Rat	Aluminum paste
	>=5000mg/kg-Rat Resin	
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	11700mg/kg-Mouse	
	2200mg/kg-Rabbit,	Triethanolamine
	5846mg/kg-Mouse	
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation	Aluminum paste
	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;skin, eye	Triethanolamine
	5	
Chronic toxicity and	0	1.0 December 11.1 / Telethere levels
	contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
0	by repeated or prolonged exposure to ubstance may have effects on the	Aluminum paste
-	ing in impaired functions.	
The liquid defats the s		2-Propanol, 1-methoxy-
The liquid defats the s	kin.	2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of	^{kin.} f overexposure and aggravated by	y exposure
The liquid defats the s	kin. f overexposure and aggravated by nausea,headache	y exposure 1,2-Propanediol
The liquid defats the s Signs and Symptos of	kin. f overexposure and aggravated by nausea,headache irritation,cough	y exposure 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos of	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the s Signs and Symptos of	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive
The liquid defats the s Signs and Symptos of Inhalation	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos of Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,itching irritation,edness irritation,redness irritation,pain irritation,eye damage	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the s Signs and Symptos of Inhalation Skin contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the s Signs and Symptos of Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the s Signs and Symptos of Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling allergic reaction,vomiting	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the s Signs and Symptos of Inhalation Skin contact Eye contact	kin. f overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,pain irritation,tearing irritation,tearing irritation,corneal swelling allergic reaction,vomiting irritation,digestive disorders	y exposure 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste

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) : Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine

EU labeling	ž	
F;R15-17		ninum paste
Xi;R36,R3	38 : Resin	1
R10	: 2-Pro	opanol, 1-methoxy-
R10 : I	Flammable.	
R15 : 0	Contact with water liberaters extremely	flammable gases.
R17 : S	Spontaneously flammable in air.	
R36 : I	Irritating to eyes.	
R38 : 1	Irritating to skin.	
CANADA 1%over	Hazardous Products Act - Ingredier : 1,2-Propanediol / Aluminum past	nt Disclosure List e / 2-Propanol, 1-methoxy- / Triethanolamine
Hazard and sa	afety information	
Products are	e manufactured in accordance with Euro	pean 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 : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Violet [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067449A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

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:

: Don't swallow ink.	
: Recap after use.	
: Don't shake.	
: Keep out of the reach of children.	
: Avoid contact with skin and eyes	
: Not available.	
: Not available.	
: Keep away from oxidizing materi	ials, ignition sources and
high temperature.	
: Avoid direct sunlight.	
: Do not leave the products in high	temperature space.
: Recommended temperature: 0-30) C.
: (Information of components.)	
le materials, halo carbons, metals,	1,2-Propanediol
naterials, reducing agents	-
0 0	Aluminum paste
al oxides, halogens, reducing	•
eroxides, metal carbides	
	Additive
	Coloring agent /
	2-Propanol, 1-methoxy-
materials	Triethanolamine
: Not applicable.	
	 Recap after use. Don't shake. Keep out of the reach of children. Avoid contact with skin and eyes Not available. Not available. Keep away from oxidizing materihigh temperature. Avoid direct sunlight. Do not leave the products in high Recommended temperature: 0-30 (Information of components.) le materials, halo carbons, metals, naterials, reducing agents erials, oxidizing materials, metals, al oxides, halogens, reducing eroxides, metal carbides

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8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering n	neasures : Not required.	
Control param	eters (Information of components.)	
OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
	5mg/m3 TWA	Triethanolamine
EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
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 prote	octive equipment Not required	·

Personal protective equipment : Not required.

..... 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components. [

Physical state and form Colour	: Middle viscous liquid. : Violet.
Odour	: None odour.
pH	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	/ 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water	: Soluble.
Evaporation rate	: Not available.
Volatile	: 87-90%

10. STABILITY AND REACTIVITY

Stability Hazardous reactions	: Stability. : Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and ot Avoid contact with incompatible n	0
Materials to avoid	: (Information of components.)	
acids, bases, combust	tible materials, halo carbons,	1,2-Propanediol
metals, metal salts, o	oxidizing materials, reducing	
acids, combustible m	aterials, oxidizing materials,	Aluminum paste
metals, metal salts, h	oases, metal oxides, halogens,	
reducing agents, halo	o carbons, peroxides, metal	
strong oxidizers		Additive
oxidizing materials		Coloring agent /
0		2-Propanol, 1-methoxy-
acids, metals, oxidizi	ng materials	Triethanolamine

: (Information of components.)

common decomposition products Aluminum paste Additive Coloring agent Triethanolamine

oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein. miscellaneous decomposition products. oxides of nitrogen.

Hazardous decomposition products

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity		
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>5000mg/kg-Rat	Aluminum paste
	>=5000mg/kg-Rat	Resin / Coloring agent
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	11700mg/kg-Mouse	
	2200mg/kg-Rabbit,	Triethanolamine
	5846mg/kg-Mouse	
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	č	Aluminum nasta
Local effects	Irritant;inhalation	Aluminum paste Additive
	dehydration	
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;skin, eye	Triethanolamine
Chronic toxicity and	long term toxicity	
Repeated or prolonge	d contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
	d by repeated or prolonged exposure to	Aluminum paste
	substance may have effects on the	
nervous system, resu	ting in impaired functions	
fiel (oub bybeelin, lebu	iting in imparied functions.	
The liquid defats the		2-Propanol, 1-methoxy-
The liquid defats the	skin.	
The liquid defats the Signs and Symptos of	skin. of overexposure and aggravated by	y exposure
The liquid defats the	skin. of overexposure and aggravated by nausea,headache	y exposure 1,2-Propanediol
The liquid defats the Signs and Symptos of	skin. of overexposure and aggravated by nausea,headache irritation,cough	y exposure 1,2-Propanediol Aluminum paste
The liquid defats the Signs and Symptos of	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation	y exposure 1,2-Propanediol Aluminum paste Coloring agent
The liquid defats the Signs and Symptos of	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy-
The liquid defats the Signs and Symptos o Inhalation	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the Signs and Symptos of	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the Signs and Symptos o Inhalation	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- <u>Triethanolamine</u> 1,2-Propanediol Aluminum paste
The liquid defats the Signs and Symptos o Inhalation	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive
The liquid defats the Signs and Symptos o Inhalation	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy-
The liquid defats the Signs and Symptos o Inhalation Skin contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the Signs and Symptos o Inhalation	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the Signs and Symptos o Inhalation Skin contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste
The liquid defats the Signs and Symptos o Inhalation Skin contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the Signs and Symptos of Inhalation Skin contact Eye contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine
The liquid defats the Signs and Symptos o Inhalation Skin contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation,nausea sore throat,difficulty breathing irritation,nausea sore throat,difficulty breathing irritation,allergic reaction irritation,allergic reaction irritation,itching sensitization irritation,itching sensitization irritation,itching sensitization irritation,elergic reaction irritation,corneal swelling allergic reaction,vomiting	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol
The liquid defats the Signs and Symptos of Inhalation Skin contact Eye contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation, nausea sore throat, difficulty breathing irritation, nausea sore throat, difficulty breathing irritation, allergic reaction irritation, itching sensitization irritation, itching sensitization irritation, redness irritation, redness irritation, pain irritation, eye damage irritation, tearing irritation, corneal swelling allergic reaction, vomiting irritation, digestive disorders	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanediol Aluminum paste
The liquid defats the Signs and Symptos of Inhalation Skin contact Eye contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation, nausea sore throat, difficulty breathing irritation, nausea sore throat, difficulty breathing irritation, allergic reaction irritation, itching sensitization irritation, itching sensitization irritation, redness irritation, redness irritation, pain irritation, eye damage irritation, tearing irritation, tearing irritation, corneal swelling allergic reaction, vomiting irritation, digestive disorders difficulty breathing, nausea	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy-
The liquid defats the Signs and Symptos of Inhalation Skin contact Eye contact	skin. of overexposure and aggravated by nausea,headache irritation,cough irritation, nausea sore throat, difficulty breathing irritation, nausea sore throat, difficulty breathing irritation, allergic reaction irritation, itching sensitization irritation, itching sensitization irritation, redness irritation, redness irritation, pain irritation, eye damage irritation, tearing irritation, corneal swelling allergic reaction, vomiting irritation, digestive disorders	y exposure 1,2-Propanediol Aluminum paste Coloring agent 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanol, 1-methoxy- Triethanolamine 1,2-Propanediol Aluminum paste 2-Propanediol Aluminum paste

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) : Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine

EU labelin	g	
F;R15-17		: Aluminum paste
Xi;R36,R	.38 :	Resin
R10	:	: 2-Propanol, 1-methoxy-
R10 :	Flammable.	
R15 :	Contact with water liberaters extr	emely flammable gases.
R17 :	Spontaneously flammable in air.	
R36 :	Irritating to eyes.	
R38 :	Irritating to skin.	
CANADA 1%over	Hazardous Products Act - Ingr : 1.2-Propanediol / Aluminum	redient Disclosure List n paste / 2-Propanol, 1-methoxy- / Triethanolamine
Hazard and s	afety information	n 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 : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Pink [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067450A Rev. 2.5.01.02

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
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resins	Registered	Registered	Polymer	< 10
			Registered	
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Glycerine	56-81-5	Registered	2002895	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

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 materia	als, ignition sources and
	high temperature.	C
Storage condition	: Avoid direct sunlight.	
0	: Do not leave the products in high	temperature space.
	: Recommended temperature: 0-30	
Incompatible products	: (Information of components.)	
acids, bases, combustibl	e materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	aterials, reducing agents	-
oxidizing materials	0.0	Resin / Coloring agent /
5		2-Propanol, 1-methoxy-
acids, combustible mate	erials, oxidizing materials, metals,	Aluminum paste
	l oxides, halogens, reducing	1 I
agents, halo carbons, pe	0 0	
strong oxidizers		Additive
0	naterials, metal oxides, peroxides,	Glycerine
reducing agents		5
		Triethanolamine
Packaging materials		

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8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering mea	asures : Not required.	
Control paramet	ers (Information of components.)	
OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
	5mg/m3 TWA(respirable dust fraction), 15mg/m3 TWA(total dust)	Glycerine
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
	100ppm TWA, 150ppm STEL 10mg/m3 TWA 5mg/m3 TWA	2-Propanol, 1-methoxy- Glycerine Triethanolamine
EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
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 :	: 8.0-8.5
Boiling point :	: Not available. [Water/ 100 C]
Melting point :	: <-10 C
Flash point :	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature :	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits :	: Not applicable.
[Lower flammable limit /	1.6%, Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density :	: 1.1-1.2 / 25 C
Vapour density (air=1) :	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water :	: Soluble.
Evaporation rate :	: Not available.
Volatile :	: 82-85%

10. STABILITY AND REACTIVITY

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

Creation Date : Nov. 18, 2005 Revision Date : Apr. 27, 2006

Materials to avoid : (Information of components.) acids, bases, combustible materials, halo carbons, 1,2-Propanediol metals, Resin / 2-Propanol, 1-methoxy- / oxidizing materials Coloring agent acids, combustible materials, oxidizing materials, Aluminum paste metals, metal salts, bases, metal oxides, halogens, reducing agents, halo carbons, peroxides, metal strong oxidizers Additive acids, bases, oxidizing materials, metal oxides, Glycerine peroxides, reducing agents acids, metals, oxidizing materials Triethanolamine Hazardous decomposition products : (Information of components.) oxides of carbon, water common decomposition products oxides of nitrogen, cyanides, aldehydes, corrosive Resin acrolein, various organic fragments. hydrocarbon gases, oxides of aluminum. Aluminum paste corrosive acrolein. Additive / Glycerine oxides of nitrogen. Triethanolamine

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity				
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol		
	1000mg/kg-Mouse	Resin		
	>=5000mg/kg-Rat	Resin		
	>5000mg/kg-Rat	Aluminum paste		
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-		
	11700mg/kg-Mouse			
	4090mg/kg-Mouse	Glycerine		
	2200mg/kg-Rabbit,	Triethanolamine		
	5846mg/kg-Mouse			
	2950mg/kg-Mouse	Coloring agent		
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-		
	>570mg/m3-1H-Rat	Glycerine		
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol		
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-		
	>10000mg/kg-Rabbit	Glycerine		
	>16mL/kg-Rat	Triethanolamine		
Local effects	Irritant;inhalation	Aluminum paste		
	dehydration	Additive		
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-		
	Irritant;skin, eye	Triethanolamine		
Chronic toxicity and lo	0			
Repeated or prolonged c	1,2-Propanediol / Triethanolamine			
Lungs may be affected b	Aluminum paste			
dust particules. The substance may have effects on the nervous system, resulting in impaired functions.				
The liquid defats the ski	2-Propanol, 1-methoxy-			
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Signs and Symptos of overexposure and aggravated by exposure				
Inhalation	nausea,headache	1,2-Propanediol		
	irritation,cough	Resin / Aluminum paste		
	irritation,nausea	2-Propanol, 1-methoxy-		
	irritation, difficulty breathing	Glycerine		
	sore throat, difficulty breathing	Triethanolamine		
Skin contact	irritation, allergic reaction	1,2-Propanediol		
	mechanical abrasion, irritation	Resin		
	irritation, itching	Aluminum paste		
	sensitization	Additive		
	irritation,dry	2-Propanol, 1-methoxy-		
	irritation, redness	Glycerine / Triethanolamine		
	burns,corrosive	Coloring agent		
Eye contact	irritation,pain	1,2-Propanediol		
	irritation	Resin		
	irritation,eye damage	Aluminum paste		
	irritation,tearing	2-Propanol, 1-methoxy-		
	tearing,stinging	Glycerine		
	irritation,corneal swelling	Triethanolamine		
Ingestion	allergic reaction, vomiting	1,2-Propanediol		
	irritation, digestive disorders	Aluminum paste		
	difficulty breathing,nausea	2-Propanol, 1-methoxy-		
	nausea,vomiting	Glycerine / Coloring agent		
	burns,gastrointestinal irritation	Triethanolamine		
Specific effects	IARC Group 3	Resin / Triethanolamine		

Signs and Symptos of overexposure and aggravated by exposure

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) : Aluminum paste / 2-Prop	anol, 1-methoxy- / Glycerine / Triethanolamine		
EU labeling			
F;R15-17	: Aluminum paste		
Xi;R36,R38	: Resin		
R10	: 2-Propanol, 1-methoxy-		
R10 : Flammable.			
R15 : Contact with water liberaters extremely flammable gases.			
R17 : Spontaneously flammable in air			
R36 : Irritating to eyes.			
R38 : Irritating to skin.			
CANADA Hazardous Products Act - In 1%over : 1,2-Propanediol / Alumin	gredient Disclosure List um paste / 2-Propanol, 1-methoxy- / Triethanolamine		

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 : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Gold [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067451A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agents	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

Fire and explosion measures : Slight fire hazard.		
lia:		
: regular dry chemical, carbon dioxide, water, regular foam.		
: Use regular foam or flood with fine water spray.		
: 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 mater	ials, ignition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
	: Do not leave the products in high	n temperature space.
	: Recommended temperature: 0-30) C.
Incompatible products	: (Information of components.)	
acids, bases, combustib	le materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	naterials, reducing agents	
acids, combustible mate	erials, oxidizing materials, metals,	Aluminum paste
metal salts, bases, meta	al oxides, halogens, reducing	
agents, halo carbons, pe	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy- /
		Coloring agent
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Control paramet	ers (Information of components.)	
OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
	15mg/m3 PEL (Nuisance Dust)	Coloring agent
ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
	100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
	5mg/m3 TWA	Triethanolamine
	10mg/m3(Nuisance particulate)	Coloring agent
EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
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	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	/ 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water	: Soluble.
Evaporation rate	: Not available.
Volatile	: 88-91%

10. STABILITY AND REACTIVITY

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and oth Avoid contact with incompatible n	0
Materials to avoid	: (Information of components.)	
acids, bases, combus	tible materials, halo	1,2-Propanediol
acids, combustible m	aterials, oxidizing	Aluminum paste
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-/
		Coloring agent
acids, metals, oxidizi	ng materials	Triethanolamine

4/5	Creation Date : Nov. 18, 2005
	Revision Date : Apr. 27, 2006
Hazardous decomposition products :	(Information of components.)
oxides of carbon, water	common decomposition products
hydrocarbon gases, oxides of aluminum.	Aluminum paste
corrosive acrolein.	Additive
oxides of nitrogen.	Triethanolamine
oxides of nitrogen, halogenated compounds	. Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components) Acute toxicity Ingestion LD50 20000mg/kg-Rat 1,2-Propanediol >5000mg/kg-Rat Aluminum paste / Coloring agent >=5000mg/kg-Rat Resin 5000mg/kg-Dog, 2-Propanol, 1-methoxy-11700mg/kg-Mouse 2200mg/kg-Rabbit, Triethanolamine 5846mg/kg-Mouse Inhalation LC50 10000ppm-5H-Rat 2-Propanol, 1-methoxy-20800mg/kg-Rabbit Skin LD50 1,2-Propanediol 13000mg/kg-Rabbit 2-Propanol, 1-methoxy->16mL/kg-Rat Triethanolamine Local effects Irritant; inhalation Aluminum paste dehydration Additive Irritant; inhalation, skin, eye 2-Propanol, 1-methoxy-Irritant;skin, eye Triethanolamine Chronic toxicity and long term toxicity Repeated or prolonged contact may cause skin sensitization. 1,2-Propanediol / Triethanolamine Lungs may be affected by repeated or prolonged exposure to Aluminum paste dust particules. The substance may have effects on the nervous system, resulting in impaired functions. The liquid defats the skin. 2-Propanol, 1-methoxy-Signs and Symptos of overexposure and aggravated by exposure Inhalation nausea, headache 1,2-Propanediol irritation,cough Aluminum paste irritation,nausea 2-Propanol, 1-methoxysore throat, difficulty breathing Triethanolamine Coloring agent irritation Skin contact irritation, allergic reaction 1,2-Propanediol irritation, itching Aluminum paste sensitization Additive 2-Propanol, 1-methoxyirritation.drv irritation, redness Triethanolamine allergic contact dermatitis Coloring agent Eye contact irritation, pain 1,2-Propanediol irritation,eye damage Aluminum paste 2-Propanol, 1-methoxyirritation, tearing irritation, corneal swelling Triethanolamine Ingestion allergic reaction, vomiting 1,2-Propanediol irritation, digestive disorders Aluminum paste difficulty breathing, nausea 2-Propanol, 1-methoxyburns, gastrointestinal irritation Triethanolamine nausea, vomiting Coloring agent

Triethanolamine

IARC Group 3

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)

: Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine

EU labeling	
F;R15-17	: Aluminum paste
Xi;R36,R38	: Resin
R10	: 2-Propanol, 1-methoxy-
R10 : Flammable.	
R15 : Contact with water liberaters e	extremely flammable gases.
R17 : Spontaneously flammable in air	r.
R36 : Irritating to eyes.	
R38 : Irritating to skin.	
CANADA Hazardous Products Act I	ngradiant Disclosura List

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

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Hazard and safety information

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

16. OTHER INFORMATION

This sheet completes the technical sheet of use but it doesn't replace it. The information contained in this sheet are based knowledge of the products at the data : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Silver [uni-ball Signo NOBLE METAL]

Address	: MITSUBISHI PENCIL CO.,LTD. : 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN : 03-3458-6281 Telefax number : 03-3450-0363 : 2422337 MBPENC J.
Creation Date	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067452A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer Registered	< 10
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

neasures : Slight fire hazard.
a:
: regular dry chemical, carbon dioxide, water, regular foam.
: Use regular foam or flood with fine water spray.
: 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 materi	ials, ignition sources and
	high temperature.	0
Storage condition	: Avoid direct sunlight.	
0	: Do not leave the products in high	temperature space.
	: Recommended temperature: 0-30) C.
Incompatible products	: (Information of components.)	
acids, bases, combustib	le materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	naterials, reducing agents	•
0	erials, oxidizing materials, metals,	Aluminum paste
	al oxides, halogens, reducing	
	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Cont	rol paramete	rs (Information of components.)	
	OSHA	15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)	Aluminum paste
	ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
		100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy-
		5mg/m3 TWA	Triethanolamine
	EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
	UK	150ppm(474mg/m3) TWA(total(vapor and pariclulates)), 10mg/m3 TWA(particlulates)	1,2-Propanediol

Personal protective equipment : Not required.

]: Information of components.

9. PHYSICAL AND CHEMICAL PROPERTIES

	- Foreitest
Physical state and form	: Middle viscous liquid.
Colour	: Silver.
Odour	: None odour.
pH	: 8.0-8.5
Boiling point	: Not available. [Water/ 100 C]
Melting point	: <-10 C
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]
Explosion limits	: Not applicable.
[Lower flammable limit	z / 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]
Density	: 1.1-1.2 / 25 C
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]
Solubulity in water	: Soluble.
Evaporation rate	: Not available.
Volatile	: 88-91%

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10. STABILITY AND REACTIVITY

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and ot Avoid contact with incompatible r	0
Materials to avoid	: (Information of components.)	
acids, bases, combus	tible materials, halo carbons,	1,2-Propanediol
	oxidizing materials, reducing	
acids, combustible m	aterials, oxidizing materials,	Aluminum paste
	bases, metal oxides, halogens,	
reducing agents, hal	o carbons, peroxides, metal	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy-
acids, metals, oxidiz	ing materials	Triethanolamine

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-UM-120NM Silver-

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Hazardous decomposition products : (Information of components.)

common decomposition products Aluminum paste Additive Triethanolamine

oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein. oxides of nitrogen.

11.TOXICOLOGICAL INFORMATION

(Information of components)

Acute toxicity		
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>5000mg/kg-Rat	Aluminum paste
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	11700mg/kg-Mouse	
	>=5000mg/kg-Rat	Resin
	2200mg/kg-Rabbit,	Triethanolamine
	5846mg/kg-Mouse	
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation	Aluminum posto
Local effects	dehydration	Aluminum paste Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy- Triethanolamine
	Irritant;skin, eye	Thethanolamme
Chronic toxicity and	0	
	l contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
0	l by repeated or prolonged exposure to	Aluminum paste
	ubstance may have effects on the	
nervous system, resul	ting in impaired functions.	
The liquid defats the skin.2-Propanol, 1-methoxy-		2-Propanol, 1-methoxy-
Signs and Symptos of	f overexposure and aggravated by	/ exposure
Inhalation	nausea,headache	1,2-Propanediol
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	sore throat, difficulty breathing	Triethanolamine
Skin contact	sore throat, difficulty breathing irritation, allergic reaction	
Skin contact	· · · · · · · · · · · · · · · · · · ·	Triethanolamine
Skin contact	irritation,allergic reaction	Triethanolamine 1,2-Propanediol
Skin contact	irritation,allergic reaction irritation,itching sensitization	Triethanolamine 1,2-Propanediol Aluminum paste Additive
Skin contact	irritation,allergic reaction irritation,itching	Triethanolamine 1,2-Propanediol Aluminum paste
	irritation,allergic reaction irritation,itching sensitization irritation,dry	Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy-
Skin contact Eye contact	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-Propanediol
	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness	Triethanolamine 1,2-Propanediol Aluminum paste Additive 2-Propanol, 1-methoxy- Triethanolamine
	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste
Eye contact	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste2-Propanol, 1-methoxy-
	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling allergic reaction,vomiting	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste2-Propanol, 1-methoxy-Triethanolamine1,2-PropaneliolAluminum paste2-Propanol, 1-methoxy-Triethanolamine1,2-Propaneliol
Eye contact	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,tearing irritation,corneal swelling allergic reaction,vomiting irritation,digestive disorders	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste2-Propanol, 1-methoxy-Triethanolamine
Eye contact	irritation,allergic reaction irritation,itching sensitization irritation,dry irritation,redness irritation,pain irritation,eye damage irritation,tearing irritation,corneal swelling allergic reaction,vomiting	Triethanolamine1,2-PropanediolAluminum pasteAdditive2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste2-Propanol, 1-methoxy-Triethanolamine1,2-PropanediolAluminum paste1,2-PropanediolAluminum paste

Specific effects IARC Group 3

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

0	rmation of components) micals (OSHA HCS)	
	: Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine	
EU labeling		
F;R15-17	: Aluminum paste	
Xi;R36,R38	: Resin	
R10	: 2-Propanol, 1-methoxy-	
R10 : Flam	ımable.	
R15 : Cont	act with water liberaters extremely flammable gases.	
•	ntaneously flammable in air.	
	ating to eyes.	
R38 : Irrita	ating to skin.	
CANADA Haz	zardous Products Act - Ingredient Disclosure List	
1%over	: 1,2-Propanediol / Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine	
Hazard and safety	/ information	
Products are manufactured in accordance with European regulation EN71 part 3		
	nufactured in accordance with ELV directive of EU.	
16. OTHER INF	ORMATION	

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 : (April 27, 2006). 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.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: UM-120NM Bronze [uni-ball Signo NOBLE METAL]

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	: Nov. 18, 2005
Revision Date	: Apr. 27, 2006
File No.	: 067453A Rev. 2.5.01.02

2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component pa	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Water	7732-18-5	Registered	2317912	50- 80
1,2-Propanediol	57-55-6	Registered	2003380	10- 30
2-Propanol, 1-methoxy-	107-98-2	Registered	2035391	< 10
Coloring agent	Registered	Registered	Registered	< 10
Resin	Registered	Registered	Registered	< 10
Additives	Registered	Registered	Polymer	< 10
			Registered	
Aluminum paste	7429-90-5	Registered	2310723	< 10
Triethanolamine	102-71-6	Registered	2030498	< 10

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 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]

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5. FIRE-FIGHTING MEASURES

neasures : Slight fire hazard.
a:
: regular dry chemical, carbon dioxide, water, regular foam.
: Use regular foam or flood with fine water spray.
: 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 mater	ials, ignition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
	: Do not leave the products in high	n temperature space.
	: Recommended temperature: 0-30) C.
Incompatible products	: (Information of components.)	
acids, bases, combustib	le materials, halo carbons, metals,	1,2-Propanediol
metal salts, oxidizing m	naterials, reducing agents	
acids, combustible mate	erials, oxidizing materials, metals,	Aluminum paste
metal salts, bases, meta	al oxides, halogens, reducing	
agents, halo carbons, pe	eroxides, metal carbides	
strong oxidizers		Additive
oxidizing materials		2-Propanol, 1-methoxy- /
		Coloring agent
acids, metals, oxidizing	materials	Triethanolamine
Packaging materials	: Not applicable.	

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8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Not required.

Contro	ol paramet	ers (Information of components.)	
(OSHA 15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3(pyro powders)		Aluminum paste
		15mg/m3 PEL (Nuisance Dust)	Coloring agent
Ā	ACGIH	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA (pyro powders)	Aluminum paste
		100ppm TWA, 150ppm STEL	2-Propanol, 1-methoxy- Triethanolamine
		5mg/m3 TWA 10mg/m3(Nuisance particulate)	Coloring agent
I	EC	100ppm(375mg/m3) TWA, 150ppm(568mg/m3) STEL	2-Propanol, 1-methoxy-
Ţ	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	: Bronze.	
Odour	: None odour.	
pH	: 8.0-8.5	
Boiling point	: Not available. [Water/ 100 C]	
Melting point	: <-10 C	
Flash point	: Not applicable. [2-Propanol, 1-methoxy-/ 32 C]	
Autoignition temperature	: Not applicable. [2-Propanol, 1-methoxy-/ 270 C]	
Explosion limits	: Not applicable.	
[Lower flammable limit	/ 1.6% , Upper flammable limit / 13.8% <2-Propanol, 1-methoxy->]	
Density	: 1.1-1.2 / 25 C	
Vapour density (air=1)	: Not available. [2-Propanol, 1-methoxy-/ 3.1]	
Solubulity in water	: Soluble.	
Evaporation rate	: Not available.	
Volatile	: 88-91%	

10. STABILITY AND REACTIVITY

Stability Hazardous reactions	: Stability. : Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and ot Avoid contact with incompatible i	0
Materials to avoid	: (Information of components.)	
acids, bases, combus	tible materials, halo carbons,	1,2-Propanediol
metals, metal salts,	oxidizing materials, reducing	-
acids, combustible m	aterials, oxidizing materials,	Aluminum paste
metals, metal salts, 1	bases, metal oxides, halogens,	_
reducing agents, hal	o carbons, peroxides, metal	
strong oxidizers	-	Additive
oxidizing materials		2-Propanol, 1-methoxy-
		Coloring agent
acids, metals, oxidizi	ing materials	Triethanolamine

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Hazardous decomposition products : (In oxides of carbon, water hydrocarbon gases, oxides of aluminum. corrosive acrolein.

: (Information of components.)

common decomposition products Aluminum paste Additive Triethanolamine / Coloring agent

11.TOXICOLOGICAL INFORMATION

(Information of components)

oxides of nitrogen.

Acute toxicity		
Ingestion LD50	20000mg/kg-Rat	1,2-Propanediol
	>5000mg/kg-Rat	Aluminum paste / Coloring agent
	>=5000mg/kg-Rat	Resin
	5000mg/kg-Dog,	2-Propanol, 1-methoxy-
	11700mg/kg-Mouse	
	2200mg/kg-Rabbit,	Triethanolamine
	5846mg/kg-Mouse	
Inhalation LC50	10000ppm-5H-Rat	2-Propanol, 1-methoxy-
Skin LD50	20800mg/kg-Rabbit	1,2-Propanediol
	13000mg/kg-Rabbit	2-Propanol, 1-methoxy-
	>16mL/kg-Rat	Triethanolamine
Local effects	Irritant;inhalation	Aluminum paste
Local chrocis	dehydration	Additive
	Irritant;inhalation, skin, eye	2-Propanol, 1-methoxy-
	Irritant;skin, eye	Triethanolamine
	·	memanolamine
Chronic toxicity and		
	d contact may cause skin sensitization.	1,2-Propanediol / Triethanolamine
	d by repeated or prolonged exposure to	Aluminum paste
	substance may have effects on the lting in impaired functions.	
-		
The liquid defats the		2-Propanol, 1-methoxy-
Signs and Symptos	of overexposure and aggravated by	y exposure
Inhalation	nausea,headache	1,2-Propanediol
	irritation,cough	Aluminum paste
	irritation,nausea	2-Propanol, 1-methoxy-
	sore throat, difficulty breathing	Triethanolamine
	irritation	Coloring agent
Skin contact	irritation,allergic reaction	1,2-Propanediol
	irritation, itching	Aluminum paste
	sensitization	Additive
	irritation,dry	2-Propanol, 1-methoxy-
	irritation,redness	Triethanolamine
	allergic contact dermatitis	Coloring agent
Eye contact	irritation,pain	1,2-Propanediol
	irritation,eye damage	Aluminum paste
	irritation,tearing	2-Propanol, 1-methoxy-
	irritation,corneal swelling	Triethanolamine
Ingestion	allergic reaction, vomiting	1,2-Propanediol
	irritation, digestive disorders	Aluminum paste
	difficulty breathing, nausea	2-Propanol, 1-methoxy-
	burns,gastrointestinal irritation	Triethanolamine
	nausea,vomiting	Coloring agent
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

0	ormation of components) emicals (OSHA HCS)	
	: Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine	
EU labeling		
F;R15-17	: Aluminum paste	
Xi;R36,R38	: Resin	
R10	: 2-Propanol, 1-methoxy-	
R10 : Flar	nmable.	
R15 : Con	tact with water liberaters extremely flammable gases.	
R17 : Spor	ntaneously flammable in air.	
	ating to eyes.	
R38 : Irrit	ating to skin.	
CANADA Ha	zardous Products Act - Ingredient Disclosure List	
1%over	: 1,2-Propanediol / Aluminum paste / 2-Propanol, 1-methoxy- / Triethanolamine	
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 INF	ORMATION	

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 : (April 27, 2006). 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.