# 1. PRODUCT AND COMPANY IDENTIFICATION

## Product name: PX-21 White [PAINT MARKER]

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	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030101A Rev. 2.5.23.05

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:				
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30

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

# 3. HAZARDS IDENTIFICATION

Most important hazards Specific hazards Not available.Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash

Electrostatic charges may be generated by flow, agitation, etc.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.9g]

# 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
0 0	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

# 7. HANDLING AND STORAGE

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

Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	nition sources and
Storage condition	: Avoid direct sunlight.	
	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
oxidizing materials, com	bustible materials, acids, amines, bases	Xylene
0	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
Packaging materials	: Not applicable.	

# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but alcohol allergy persons recommended.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

Physical state and form	· Low viscous liquid
5	: Low viscous liquid.
Colour	: White.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 43-46%

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# **10. STABILITY AND REACTIVITY**

Stability	: Stability.		
Hazardous reactions	: Will not occur.		
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0	
Materials to avoid: (Information of components.)metalsTitanium dioxideoxidizing materials, combustible materials, acids, amines, basesXyleneacids, bases, oxidizing materials, combustible materialsBenzene, ethyl-oxidizing materialsResin			
Hazardous decomposition products oxides of carbon, water: (Information of components.) common decomposition products			

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# **11.TOXICOLOGICAL INFORMATION**

/kg-Rat Titanium dioxide
g-Mouse Xylene
g-Rat Benzene, ethyl-
m3-4H-Rat Titanium dioxide
4H-Rat Xylene
/m3-Rabbit Titanium dioxide
kg-Rabbit Xylene
g-Rabbit Benzene, ethyl-
skin, eye Xylene / Benzene, ethyl- / Resi
e to noise. Animal tests show that a sity to human reproduction or
e and aggravated by exposure
gh Titanium dioxide / Resin
gh Titanium dioxide / Resin Isea Xylene
isea Xylene
isea Xylene
isea Xylene iculty breathing Benzene, ethyl-
isea Xylene iculty breathing Benzene, ethyl- Titanium dioxide / Resin
isea Xylene Siculty breathing Benzene, ethyl- Titanium dioxide / Resin Xylene
isea Xylene iculty breathing Benzene, ethyl- Titanium dioxide / Resin ters Xylene orption Benzene, ethyl-
isea Xylene iculty breathing Benzene, ethyl- Titanium dioxide / Resin Xylene orption Benzene, ethyl- Titanium dioxide
isea Xylene iculty breathing Benzene, ethyl- Titanium dioxide / Resin Xylene orption Benzene, ethyl- Titanium dioxide n Xylene

B nausea, vomiting Benzene, ethyl-Specific effects IARC Group 3 Xylene IARC Group 2B Benzene, ethyl-

# **12. ECOLOGICAL INFORMATION**

Not available.

## 13. DISPOSAL CONSIDERATIONS

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

Contaminated packaging : Not applicable.

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## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-	
EU labeling		
12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10	: Xylene	
25%<=Xn;R20, F;R11	: Benzene, ethyl-	
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-	
Hazard and safety information		
Products are manufactured in accordance with Eu	ropean 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 : (January 5, 2007). 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: PX-21 Yellow [PAINT MARKER]

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	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030102A Rev. 2.5.23.05

### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agent	Registered	Registered	Registered	< 10

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

## 3. HAZARDS IDENTIFICATION

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.9g]

# 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, igi	nition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
-	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals	-	Titanium dioxide
oxidizing materials, com	oustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing m	aterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
Packaging materials	: Not applicable.	

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but clockel allorgy persons

but alcohol allergy persons recommended.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ]: Informa	on of components.
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Physical state and form	: Low viscous liquid.
Colour	: Yellow.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 44-47%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0
0	: (Information of components.) combustible materials, acids, amines, bases ng materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin
Hazardous decompos oxides of carbon, wa oxides of nitrogen.		

# 11.TOXICOLOGICAL INFORMATION

(Information of com	ponents)	
Acute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
Local effects Irritant;inhalation, skin, eye Xylene / Benzene, ethyl- / Resin		
Chronic toxicity and	l long term toxicity	
The liquid defats the skin. The substance may have effects on the Xylene		
central nervous system. Exposure to the substance may enhance		
hearing damage caused by exposure to noise. Animal tests show that		
	sibly causes toxicity to human reprodu	
development.		
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<b>e i i</b>	of overexposure and aggravated b	1 <b>-</b>
Inhalation	irritation,cough	Titanium dioxide / Resin
	irritation,nausea	Xylene
	irritation,difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent

Xylene

**Xylene** 

Resin

Xylene

**Xylene** 

Benzene, ethyl-

Benzene, ethyl-

Benzene, ethyl-

Benzene, ethyl-

Titanium dioxide / Coloring agent

# 12. ECOLOGICAL INFORMATION

irritation, blisters

irritation,tearing irritation,redness

irritation,nausea

nausea,vomiting

IARC Group 3

IARC Group 2B

irritation irritation,burn

irritation, absorption

Not available.

Eye contact

Ingestion

Specific effects

# 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

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## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-
EU labeling 12.5%<=Xn:R20/21<20%<=Xn:R20/21-38. R10	. Vulana
···· , ·· , ·· , ·· , ·· , ·· ,	: Xylene
25%<=Xn;R20, F;R11	: Benzene, ethyl-
CANADA Hazardous Products Act - Ingredie 0.1%over	
0.1/00ver	: Benzene, ethyl-
Hazard and safety information	
Products are manufactured in accordance with Eu	ropean regulation EN71 part 3
Products are manufactured in accordance with EL	
10 OTHED INFORMATION	

# **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 : (January 5, 2007). 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: PX-21 Red [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030103A Rev. 2.5.23.05

### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.8g]

# 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	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:

i iuliuliis.		
Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig	nition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
0	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals	-	Titanium dioxide
oxidizing materials, cor	nbustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing i	materials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but alcohol allergy persons recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ]: Information of co	mponents.
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Physical state and form	: Low viscous liquid.
Colour	: Red.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 46-49%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0
0	: (Information of components.) combustible materials, acids, amines, bases ng materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wa oxides of nitrogen.		

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# 11.TOXICOLOGICAL INFORMATION

(Information of components)		
Acute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
Inhalation LC50	8	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
Local effects Irr	itant;inhalation, skin, eye	Xylene / Benzene, ethyl- / Resin
Chronic toxicity and long term toxicity The liquid defats the skin. The substance may have effects on the Xylene central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.		
Signs and Symptos	of overexposure and aggravated b	y exposure
Inhalation irritation, cough Titanium dioxide / Resin		Titanium dioxide / Resin
	irritation,nausea	Xylene
	irritation,difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
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		Coloring agent
	irritation,blisters	Xylene
	irritation, absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation,redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
Specific effects	IARC Group 3	Xylene
•	IARC Group 2B	Benzene, ethyl-

# 12. ECOLOGICAL INFORMATION

Not available.

# 13. DISPOSAL CONSIDERATIONS

Waste from residues: Disposal in accordance with all current regulations and standards.Contaminated packaging : Not applicable.

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## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-
EU labeling 12.5%<=Xn:R20/21<20%<=Xn:R20/21-38. R10	: Xylene
25%<=Xn;R20, F;R11	: Benzene, ethyl-
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-
Hazard and safety information	
Products are manufactured in accordance with Eu	ropean regulation EN71 part 3
Products are manufactured in accordance with EL	V directive of EU.
16 OTHED INFORMATION	

# **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 : (January 5, 2007). 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: PX-21 Blue [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030104A Rev. 2.5.23.05

### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl-> MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

Electrostatic charges may be generated by flow, agitation, etc.

# 4. FIRST-AID MEASURES

### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

## 5. FIRE-FIGHTING MEASURES

Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
0 0	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	nition sources and
Storage condition	: Avoid direct sunlight.	
Storage condition	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals	· (	Titanium dioxide
	mbustible materials, acids, amines, bases	Xylene
0	materials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	5 6

-PX-21 Blue-

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but also hel allocated allocated and and allocated allocated

but alcohol allergy persons recommended.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ]: Informa	on of components.
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Colour: Blue.Odour: Aromatic odour.pH: Not applicable.Boiling point: Not available. [Benzene, ethyl-/ 136 C]Melting point: Not available.Flash point: Not available.Flash point: Not available. [Benzene, ethyl-/ 15 C(CC)]Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[ Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 CVapour density (air=1): Not available. [Benzene, ethyl-/ 3.7]</benzene,>
pH: Not applicable.Boiling point: Not available. [Benzene, ethyl-/ 136 C]Melting point: Not available.Flash point: Not available.Flash point: Not available. [Benzene, ethyl-/ 15 C(CC)]Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
Boiling point: Not available. [Benzene, ethyl-/ 136 C]Melting point: Not available.Flash point: Not available. [Benzene, ethyl-/ 15 C(CC)]Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[ Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
Melting point: Not available.Flash point: Not available. [Benzene, ethyl-/ 15 C(CC)]Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[ Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
Flash point: Not available. [Benzene, ethyl-/ 15 C(CC)]Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[Lower flammable limit / 0.8%, Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
Autoignition temperature: Not available. [Benzene, ethyl-/ 432 C]Explosion limits: Not applicable.[Lower flammable limit / 0.8%, Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
Explosion limits: Not applicable.[ Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]Density: about 1.3 / 25 C</benzene,>
[ Lower flammable limit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ] Density : about 1.3 / 25 C</benzene,>
Density : about 1.3 / 25 C
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Vapour density (air=1) : Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water : Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate : Not available. [Xylene/ 0.6]
Volatile : 46-49%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other sources Avoid contact with incompatible materials.	of ignition.
Materials to avoid	: (Information of components.)	
metals	-	Titanium dioxide
oxidizing materials,	combustible materials, acids, amines, bases	Xylene
acids, bases, oxidiziı	ng materials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Hazardous decompos	ition products : (Information of compon	ents.)
oxides of carbon, water common decomposition products		
oxides of nitrogen, s	ulfur, copper. Coloring agent	-

# **11.TOXICOLOGICAL INFORMATION**

#### (Information of components)

#### Acute toxicity

neute tometry			
Ingestion LD50 >24000mg/kg-Rat		Titanium dioxide	
	2119mg/kg-Mouse	Xylene	
	3500mg/kg-Rat	Benzene, ethyl-	
	525mg/kg-Rat	Coloring agent	
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide	
	5000ppm-4H-Rat	Xylene	
Skin LD50 >10000mg/m3-Rabbit		Titanium dioxide	
>1700mg/kg-Rabbit		Xylene	
17800uL/kg-Rabbit		Benzene, ethyl-	
>2000mg/kg Coloring agent			
Local effects Irritant;inhalation, skin, eye Xylene / Benzene, ethyl- / Rea		Xylene / Benzene, ethyl- / Resin	

Irritant; inhalation, skin, eye

**Xylene** 

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

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

Signs and Symptos	of overexposure and aggravated by	y exposure
Inhalation	irritation,cough	Titanium dioxide / Resin
	irritation,nausea	Xylene
	irritation,difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent
	irritation,blisters	Xylene
	irritation,absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
•	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation,redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
Specific effects	IARC Group 3	Xylene
1	IARC Group 2B	Benzene, ethyl-

## **12. ECOLOGICAL INFORMATION**

#### Not available.

### 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

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## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-
EU labeling 12.5%<=Xn:R20/21<20%<=Xn:R20/21-38. R10	· Vulana
···· , ··· , ··· , ··· , ··· ,	: Xylene
25%<=Xn;R20, F;R11	: Benzene, ethyl-
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-
Hazard and safety information	
Products are manufactured in accordance with Eu	ropean regulation EN71 part 3
Products are manufactured in accordance with EL	
10. ΟΤΙΙΕΡ ΙΝΕΟΡΜΑΤΙΟΝ	

# **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 : (January 5, 2007). 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: PX-21 Green [PAINT MARKER]

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	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030105A Rev. 2.5.24.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.8g]

# 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig	nition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
oxidizing materials, com	bustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing m	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
Packaging materials	: Not applicable.	

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : G

: General persons are not required, but alcohol allergy persons recommended.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

Physical state and form	: Low viscous liquid.
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Colour	: Green.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 46-49%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other sources Avoid contact with incompatible materials.	s of ignition.
Materials to avoid: (Information of components.) metalsTitanium dioxideoxidizing materials, combustible materials, acids, amines, bases acids, bases, oxidizing materials, combustible materialsXylenebases, oxidizing materials, combustible materialsBenzene, ethyl- Resin		Xylene Benzene, ethyl-
Hazardous decomposition products oxides of carbon, water oxides of nitrogen.: (Information of components.) common decomposition products 		

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# **11.TOXICOLOGICAL INFORMATION**

(Information	of components)
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Acute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	>5000mg/kg-Rat	Coloring agent
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
Local effects Irritant;inhalation, skin, eye Xylene / Benzene, ethyl- / Resin		

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects o	n the Xylene
central nervous system. Exposure to the substance may enha	ance
hearing damage caused by exposure to noise. Animal tests sl	how that
this substance possibly causes toxicity to human reproduction	n or
development.	
The liquid defats the skin. The substance may have	Xylene

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

Signs and Symptos of overexposure and aggravated by exposure				
Inhalation	irritation,cough	Titanium dioxide / Resin		
	irritation,nausea	Xylene		
	irritation, difficulty breathing	Benzene, ethyl-		
Skin contact	irritation	Titanium dioxide / Resin /		
		Coloring agent		
	irritation,blisters	Xylene		
	irritation, absorption	Benzene, ethyl-		
Eye contact	irritation	Titanium dioxide / Coloring agent		
	irritation,burn	Xylene		
	irritation,tearing	Benzene, ethyl-		
	irritation,redness	Resin		
Ingestion	irritation,nausea	Xylene		
-	nausea,vomiting	Benzene, ethyl-		
		X 1		
Specific effects	IARC Group 3	Xylene		
	IARC Group 2B	Benzene, ethyl-		

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### **12. ECOLOGICAL INFORMATION**

#### Not available.

### 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

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# 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-
Hazard and safety information Products are manufactured in accordance with Eu Products are manufactured in accordance with EL	
16. OTHER INFORMATION	

# 16. OTHER

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 : (January 5, 2007). 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: PX-21 Pink [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030106A Rev. 2.5.22.05

### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agent	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.9g]

# 5. FIRE-FIGHTING MEASURES

Exitinguishing media:

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risk.
ire.
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# 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Not available.
Environmental precautions	:	Do not wash away into shower or water way.
Methods for cleaning up	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

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## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	gnition sources and
Storage condition	: Avoid direct sunlight.	
0	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
oxidizing materials, con	nbustible materials, acids, amines, bases	Xylene
	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but alcohol allergy persons recommended.

# 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Pink.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 42-45%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0
0	: (Information of components.) combustible materials, acids, amines, bases g materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wa oxides of nitrogen.		

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# **11.TOXICOLOGICAL INFORMATION**

(Information of com	ponents)			
Acute toxicity				
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide		
	2119mg/kg-Mouse	Xylene		
	3500mg/kg-Rat	Benzene, ethyl-		
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide		
	5000ppm-4H-Rat	Xylene		
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide		
	>1700mg/kg-Rabbit	Xylene		
	17800uL/kg-Rabbit	Benzene, ethyl-		
Local effects Irritant;inhalation, skin, eye Xylene / Benzene, ethyl- / Resin				
Chronic toxicity and long term toxicity				
Ũ	The liquid defats the skin. The substance may have effects on the Xylene			
-	stem. Exposure to the substance may	e e		
Ū.	used by exposure to noise. Animal tes			
8 8	sibly causes toxicity to human reprodu			
development.				
•				
Signs and Symptos of overexposure and aggravated by exposure				
Inhalation	irritation,cough	Titanium dioxide / Resin		
	irritation,nausea	Xylene		

matation	in nuclon, cough	Thuman alonate / Nebin
	irritation,nausea	Xylene
	irritation,difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent
	irritation,blisters	Xylene
	irritation, absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation, redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
		X 1
Specific effects	IARC Group 3	Xylene
	IARC Group 2B	Benzene, ethyl-

# 12. ECOLOGICAL INFORMATION

Not available.

# 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS) : Titanium dioxide / Xylene / Benzene, ethyl-EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 : Xylene 25%<=Xn;R20, F;R11 : Benzene, ethyl-CANADA Hazardous Products Act - Ingredient Disclosure List 0.1%over : Benzene, ethyl-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 : (January 5, 2007). 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: PX-21 Orange [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030107A Rev. 2.5.22.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.9g]

# 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

0 0	
Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
0 0	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

# 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures : Don't swallow ink.				
	Recap after use.			
	: Keep out of the reach of children.			
	: Avoid contact with skin and eyes.			
Precautions	: Use only in well-ventilated areas.			
	: Don't breathe the vapor.			
Safe handling advice	: Not available.	•		
Storage:				
Technical measures				
	high temperature.			
Storage condition	: Avoid direct sunlight.			
C	: Keep away from heat sources.			
	: Recommended temperature: 0-30 C.			
Incompatible products	: (Information of components.)			
metals	-	Titanium dioxide		
oxidizing materials, com	bustible materials, acids, amines, bases	Xylene		
acids, bases, oxidizing m	aterials, combustible materials	Benzene, ethyl-		
oxidizing materials		Resin		
Packaging materials	: Not applicable.			

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# 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : Ge

: General persons are not required, but alcohol allergy persons recommended.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Orange.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable ]	imit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 42-45%

# **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid : Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.		
Materials to avoid: (Information of components.)metalsTitanium dioxideoxidizing materials, combustible materials, acids, amines, basesXyleneacids, bases, oxidizing materials, combustible materialsBenzene, ethyl-oxidizing materialsResin		
Hazardous decomposition products oxides of carbon, water oxides of nitrogen.: (Information of components.) common decomposition products 		

[

# **11.TOXICOLOGICAL INFORMATION**

(Information of comp	ponents)		
Acute toxicity			
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide	
	2119mg/kg-Mouse	Xylene	
	3500mg/kg-Rat	Benzene, ethyl-	
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide	
	5000ppm-4H-Rat	Xylene	
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide	
	>1700mg/kg-Rabbit	Xylene	
	17800uL/kg-Rabbit	Benzene, ethyl-	
Local effects Irritant;inhalation, skin, eye Xylene / Benzene, ethyl- / Resin			
Chronic toxicity and	long term toxicity		
-	e skin. The substance may have effec	cts on the Xylene	
central nervous system. Exposure to the substance may enhance			
	used by exposure to noise. Animal tes		
this substance possibly causes toxicity to human reproduction or			
development.			
•	f overexposure and aggravated b	y exposure	
Inhalation	irritation,cough	Titanium dioxide / Resin	
	irritation, nausea	Xylene	
	irritation difficulty broathing	Bonzono othyl	

Inhalation	irritation,cough Titanium dioxide / Resin	
	irritation,nausea Xylene	
	irritation, difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent
	irritation,blisters	Xylene
	irritation, absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation,redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
Specific effects	IARC Group 3	Xylene
-	IARC Group 2B	Benzene, ethyl-

# **12. ECOLOGICAL INFORMATION**

Not available.

# 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

## 14. TRANSPORT INFORMATION

HS Code : 960820

### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-		
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-		
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-		
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 : (January 5, 2007). 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: PX-21 Light blue [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030108A Rev. 2.5.23.05

### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

# **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then.

[Ink quantity of product : about 3.9g]

#### 5. FIRE-FIGHTING MEASURES

Exitinguishing media:

Cuttable	
Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	nition sources and
Storage condition	: Avoid direct sunlight.	
Storage condition	: Keep away from heat sources.	
Incompatible products	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	TT 1
metals		Titanium dioxide
	nbustible materials, acids, amines, bases	Xylene
0	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but alcohol allergy persons recommended.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

[	]: Information of components.
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Physical state and form	: Low viscous liquid.
Colour	: Light blue.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 45-48%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	
e	: (Information of components.) combustible materials, acids, amines, bases ng materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wa oxides of nitrogen.		,

### 11.TOXICOLOGICAL INFORMATION

#### (Information of components)

Acute toxicity			
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide	
_	2119mg/kg-Mouse	Xylene	
	3500mg/kg-Rat	Benzene, ethyl-	
	525mg/kg-Rat,	Coloring agent	
	>5000mg/kg-Rat		
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide	
	5000ppm-4H-Rat	Xylene	
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide	
	>1700mg/kg-Rabbit	Xylene	
	17800uL/kg-Rabbit	Benzene, ethyl-	
	>2000mg/kg	Coloring agent	

Local effects Irritant;inhalation, skin, eye

Xylene / Benzene, ethyl- / Resin

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the<br/>central nervous system. Exposure to the substance may enhance<br/>hearing damage caused by exposure to noise. Animal tests show that<br/>this substance possibly causes toxicity to human reproduction or<br/>development.Xylene

Signs and Symptos of overexposure and aggravated by exposure

Signs and Symptos of overexposure and aggravated by exposure				
Inhalation	irritation,cough	Titanium dioxide / Resin		
	irritation, nausea	Xylene		
	irritation, difficulty breathing	Benzene, ethyl-		
Skin contact	irritation	Titanium dioxide / Resin /		
		Coloring agent		
	irritation,blisters	Xylene		
	irritation, absorption	Benzene, ethyl-		
Eye contact	irritation	Titanium dioxide / Coloring agent		
	irritation,burn	Xylene		
	irritation,tearing	Benzene, ethyl-		
	irritation,redness	Resin		
Ingestion	irritation,nausea	Xylene		
	nausea,vomiting	Benzene, ethyl-		
Care alfred affecta		X I		
Specific effects	IARC Group 3	Xylene		
	IARC Group 2B	Benzene, ethyl-		

## 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

#### **15. REGULATORY INFORMATION**

: 960820

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-	
EU labeling		
12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10	: Xylene	
25%<=Xn;R20, F;R11	: Benzene, ethyl-	
CANADA Hazardous Products Act - Ingredie	ent Disclosure List	
0.1%over	: Benzene, ethyl-	
Hazard and safety information		
Products are manufactured in accordance with Eu	ropean regulation EN71 part 3	
Products are manufactured in accordance with ELV directive of EU.		

## **16. OTHER INFORMATION**

## Safety data sheet for chemical products

#### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product name: PX-21 Light green [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030109A Rev. 2.5.23.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

## **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.9g]

## 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

\_\_\_\_\_

## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, igni	ition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
C	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals	-	Titanium dioxide
oxidizing materials, com	bustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing m	aterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
Packaging materials	: Not applicable.	

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General p

: General persons are not required, but alcohol allergy persons recommended.

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#### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### [ ]: Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Light green.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 44-47%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0
e	: (Information of components.) combustible materials, acids, amines, bases g materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin
Hazardous decomposition products : (Information of components.)		
oxides of carbon, wat oxides of nitrogen.	er common decomp Coloring agent	osition products

**Xylene** 

### 11.TOXICOLOGICAL INFORMATION

(Information	of components)
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i iouco comorej		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	>5000mg/kg-Rat	Coloring agent
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
Local effects Irritant;inhalation, skin, eye		Xylene / Benzene, ethyl- / Resin

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

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

0 3 1	1 00	5 1
Inhalation	irritation,cough	Titanium dioxide / Resin
	irritation,nausea	Xylene
	irritation, difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent
	irritation,blisters	Xylene
	irritation, absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation,redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
Care alfie affects		X 1
Specific effects	IARC Group 3	Xylene
	IARC Group 2B	Benzene, ethyl-

#### **12. ECOLOGICAL INFORMATION**

Not available.

#### 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

#### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-	
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-	
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-	
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		

## Safety data sheet for chemical products

#### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product name: PX-21 Violet [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030110A Rev .2.5.22.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

#### 3. HAZARDS IDENTIFICATION

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

### 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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 :	:	Take/Soak up with absorbent.
:	:	In accordance with national, state and local regulations.

# 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	gnition sources and
Storage condition	: Avoid direct sunlight.	
8	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
oxidizing materials, con	nbustible materials, acids, amines, bases	Xylene
e	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : Gener

: General persons are not required, but alcohol allergy persons recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### [ ]: Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Violet.
Odour	: Aromatic odour.
pН	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 45-48%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials.	0
0	: (Information of components.) combustible materials, acids, amines, bases g materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wat oxides of nitrogen.		

## **11.TOXICOLOGICAL INFORMATION**

#### (Information of components)

#### Acute toxicity

icute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	525mg/kg-Rat	Coloring agent
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
	>2000mg/kg	Coloring agent
Local effects Irrita	nt;inhalation, skin, eye	Xylene / Benzene, ethyl- / Resin

Local effects Irritant; inhalation, skin, eye

**Xylene** 

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

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

Signs and Symptos	or overexposure and aggravated by	y exposure
Inhalation	irritation,cough	Titanium dioxide / Resin
	irritation,nausea	Xylene
	irritation,difficulty breathing	Benzene, ethyl-
Skin contact	irritation	Titanium dioxide / Resin /
		Coloring agent
	irritation,blisters	Xylene
	irritation, absorption	Benzene, ethyl-
Eye contact	irritation	Titanium dioxide / Coloring agent
	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation,redness	Resin
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
Specific offects	IADC Crown 2	Vulana
Specific effects	IARC Group 3	Xylene
	IARC Group 2B	Benzene, ethyl-

#### **12. ECOLOGICAL INFORMATION**

#### Not available.

## 13. DISPOSAL CONSIDERATIONS

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

Contaminated packaging : Not applicable.

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### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-		
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-		
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-		
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.			
6 OTHER INFORMATION			

## 16. OTHER

## Safety data sheet for chemical products

#### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product name: PX-21 Brown [PAINT MARKER]

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	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030111A Rev. 2.5.23.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

## **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. 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.

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Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then.

[Ink quantity of product : about 3.8g]

## 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

#### 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	nition sources and
Storage condition	: Avoid direct sunlight.	
8	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
oxidizing materials, cor	nbustible materials, acids, amines, bases	Xylene
	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	_ 0

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : G

: General persons are not required, but alcohol allergy persons recommended.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

Physical state and form	: Low viscous liquid.
Colour	: Brown.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 44-47%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	8
e	: (Information of components.) combustible materials, acids, amines, bases ag materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wat oxides of nitrogen.		

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## **11.TOXICOLOGICAL INFORMATION**

#### (Information of components)

#### Acute toxicity

icute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	>2000mg/kg	Coloring agent
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
	>2000mg/kg	Coloring agent
Local effects Irrita	nt;inhalation, skin, eye	Xylene / Benzene, ethyl- / Resin

Local effects Irritant; inhalation, skin, eye

**Xylene** 

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

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

Signs and Symptos	or overexposure and aggravated by	y exposure	
Inhalation	irritation,cough	Titanium dioxide / Resin	
	irritation,nausea	Xylene	
	irritation,difficulty breathing	Benzene, ethyl-	
Skin contact	irritation	Titanium dioxide / Resin /	
		Coloring agent	
	irritation,blisters	Xylene	
	irritation,absorption	Benzene, ethyl-	
Eye contact	irritation	Titanium dioxide / Coloring agent	
	irritation,burn	Xylene	
	irritation,tearing	Benzene, ethyl-	
	irritation,redness	Resin	
Ingestion	irritation,nausea	Xylene	
	nausea,vomiting	Benzene, ethyl-	
Specific offects	IADC Crown 2	Vulana	
Specific effects	IARC Group 3	Xylene	
	IARC Group 2B	Benzene, ethyl-	

#### **12. ECOLOGICAL INFORMATION**

#### Not available.

#### **13. DISPOSAL CONSIDERATIONS**

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

#### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-	
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-	
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-	
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		

## Safety data sheet for chemical products

#### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product name: PX-21 Grey [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030112A Rev. 2.5.23.05

#### 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%)
Titanium dioxide	13463-67-7	Registered	2366755	30- 50
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
Coloring agents	Registered	Registered	Registered	< 10

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

#### 3. HAZARDS IDENTIFICATION

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.8g]

5. FIRE-FIGHTING MEASURES

Exitinguishing media:

Suitable<br/>Large fires: regular dry chemical, carbon dioxide, water, regular foamSite Large fires: Use regular foam or flood with fine water spray.Fire fighting: Move container from fire area if it can be done without risk.<br/>Use extinguishing agents appropriate for surrounding fire.<br/>Avoid inhalation of material or combustion by-products.<br/>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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

#### 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig high temperature.	nition sources and
Storage condition	: Avoid direct sunlight.	
	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
metals		Titanium dioxide
	nbustible materials, acids, amines, bases	Xylene
	naterials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	5.0

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## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	10mg/m3 TWA	Titanium dioxide
	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required,

: General persons are not required, but alcohol allergy persons recommended.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

[	]:	Information of components.
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Physical state and form	: Low viscous liquid.
Colour	: Grey.
Odour	: Aromatic odour.
pH	: Not applicable.
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8% , Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 1.3 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 45-48%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.	
Hazardous reactions	: Will not occur.	
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	_
0	: (Information of components.) combustible materials, acids, amines, bases g materials, combustible materials	Titanium dioxide Xylene Benzene, ethyl- Resin Coloring agent
Hazardous decompos oxides of carbon, wa oxides of nitrogen.		,

## **11.TOXICOLOGICAL INFORMATION**

#### (Information of components)

#### Acute toxicity

icute toxicity		
Ingestion LD50	>24000mg/kg-Rat	Titanium dioxide
	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	>2000mg/kg	Coloring agent
Inhalation LC50	>6820mg/m3-4H-Rat	Titanium dioxide
	5000ppm-4H-Rat	Xylene
Skin LD50	>10000mg/m3-Rabbit	Titanium dioxide
	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
	>2000mg/kg	Coloring agent
Local effects Irrita	nt;inhalation, skin, eye	Xylene / Benzene, ethyl- / Resin

Local effects Irritant; inhalation, skin, eye

**Xylene** 

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

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

Signs and Symptos	of overexposure and aggravated by	y exposure	
Inhalation	irritation,cough	Titanium dioxide / Resin	
	irritation,nausea	Xylene	
	irritation,difficulty breathing	Benzene, ethyl-	
Skin contact	irritation	Titanium dioxide / Resin /	
		Coloring agent	
	irritation,blisters	Xylene	
	irritation, absorption	Benzene, ethyl-	
Eye contact	irritation	Titanium dioxide / Coloring agent	
	irritation,burn	Xylene	
	irritation,tearing	Benzene, ethyl-	
	irritation,redness	Resin	
Ingestion	irritation,nausea	Xylene	
	nausea,vomiting	Benzene, ethyl-	
Specific effects	IARC Group 3	Xylene	
	IARC Group 2B	Benzene, ethyl-	

#### **12. ECOLOGICAL INFORMATION**

#### Not available.

## 13. DISPOSAL CONSIDERATIONS

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

Contaminated packaging : Not applicable.

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#### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Titanium dioxide / Xylene / Benzene, ethyl-	
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11	: Xylene : Benzene, ethyl-	
CANADA Hazardous Products Act - Ingredie 0.1%over	ent Disclosure List : Benzene, ethyl-	
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**

## Safety data sheet for chemical products

### 1. PRODUCT AND COMPANY IDENTIFICATION

#### Product name: PX-21 Black [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030113A Rev. 2.5.03.05

#### 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%)
Xylenes	1330-20-7	Registered	2155357	50- 80
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resins	Registered	Registered	Polymer	10- 30
1-Propanol, 2-methyl-	78-83-1	Registered	2011480	< 10
Coloring agents	Registered	Registered	Registered	< 10

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

## 3. HAZARDS IDENTIFICATION

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

<1-Propanol, 2-methyl->

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

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

## 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then.

[Ink quantity of product : about 2.8g]

### 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable	: regular dry chemical, carbon dioxide, water, regular foam
Large fires	: Use regular foam or flood with fine water spray.
Fire fighting	: Move container from fire area if it can be done without risk.
	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 :	Take/Soak up with absorbent.
:	In accordance with national, state and local regulations.

# 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials, ig	nition sources and
	high temperature.	
Storage condition	: Avoid direct sunlight.	
	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
oxidizing materials, con	nbustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing	materials, combustible materials	Benzene, ethyl-
oxidizing materials		Resin
metals, oxidizing mater	rials, combustible materials, metal salts	1-Propanol, 2-methyl-
strong oxidizers		Coloring agent
Packaging materials	: Not applicable.	

-PX-21 Black-

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
	100ppm(300mg/m3) TWA	1-Propanol, 2-methyl-
ACGIH	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
	50ppm TWA	1-Propanol, 2-methyl-
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required, but alcohol allergy persons recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

]: Information of components.

[ ]	<u>F</u>
Physical state and form	: Low viscous liquid.
Colour	: Black.
Odour	: Aromatic odour.
pН	: Not applicable.
Boiling point	: Not available. [1-Propanol, 2-methyl-/ 108 C]
Melting point	: Not available.
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]
Autoignition temperature	: Not available. [1-Propanol, 2-methyl-/ 415 C]
Explosion limits	: Not applicable.
[ Lower flammable li	mit / 0.8%, Upper flammable limit / 6.7% <benzene, ethyl-=""> ]</benzene,>
Density	: about 0.9 / 25 C
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]
Evaporation rate	: Not available. [Xylene/ 0.6]
Volatile	: 70-73%

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.			
Hazardous reactions	: Will not occur.			
Conditions to avoid	: Avoid heat, flames, sparks and other source Avoid contact with incompatible materials	0		
Materials to avoid: (Information of components.)oxidizing materials, combustible materials, acids, amines, bases acids, bases, oxidizing materials, combustible materialsXyleneacids, bases, oxidizing materials, combustible materialsBenzene, ethyl- Resinmetals, oxidizing materials, combustible materials, metal salts strong oxidizers1-Propanol, 2-methyl- 				
Hazardous decomposition products oxides of carbon, water oxides of nitrogen.: (Information of components.) common decomposition products Coloring agent				

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**Xylene** 

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## 11.TOXICOLOGICAL INFORMATION

#### (Information of components)

#### Acute toxicity

full toxicity		
Ingestion LD50	2119mg/kg-Mouse	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	2460mg/kg-Rat	1-Propanol, 2-methyl-
	>2000mg/kg	Coloring agent
Inhalation LC50	5000ppm-4H-Rat	Xylene
Skin LD50	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
	3400mg/kg-Rabbit	1-Propanol, 2-methyl-
	>2000mg/kg	Coloring agent
Local effects Irritant;inhalation, skin, eye		Xylene / Benzene, ethyl- /
		1-Propanol, 2-methyl- / Resin

Chronic toxicity and long term toxicity

The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Signs and Symptos of overexposure and aggravated by exposure

Inhalation	irritation,nausea	Xylene / 1-Propanol, 2-methyl- /
		Resin
	irritation,cough	Resin
	irritation, difficulty breathing	Benzene, ethyl-
Skin contact	irritation, blisters	Xylene
	irritation,absorption	Benzene, ethyl-
	irritation	Resin / Coloring agent
	irritation,redness	1-Propanol, 2-methyl-
Eye contact	irritation,burn	Xylene
	irritation,tearing	Benzene, ethyl-
	irritation, redness	Resin / 1-Propanol, 2-methyl-
	irritation	Coloring agent
Ingestion	irritation,nausea	Xylene
	nausea,vomiting	Benzene, ethyl-
	abdominal pain,headache	1-Propanol, 2-methyl-
Specific effects	IARC Group 3	Xylene
-	IARC Group 2B	Benzene, ethyl-

## 12. ECOLOGICAL INFORMATION

Not available.

## 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

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#### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Xylene / Benzene, ethyl- / 1-Propanol, 2-methyl-
EU labeling	
12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, I	R10 : Xylene
25%<=Xn;R20, F;R11	: Benzene, ethyl-
Xi;R37/38-41, R67, R10	: 1-Propanol, 2-methyl-
CANADA Hazardous Products Act - Ing	redient Disclosure List
0.1%over	: Benzene, ethyl-
1%over	: 1-Propanol, 2-methyl-
Hazard and safety information	
Products are manufactured in accordance with	h European regulation EN71 part 3

Products are manufactured in accordance with ELV directive of EU.

## 16. OTHER INFORMATION

## Safety data sheet for chemical products

### 1. PRODUCT AND COMPANY IDENTIFICATION

### Product name: PX-21 Gold [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030114A Rev. 2.5.04.05

#### 2. COMPOSITION/INFORMATION ON INGREDIENTS

The chemical product is a substance or a preparation : Preparation

Chemical nature:	Component p	arts : Ink		
Chemical or generic name	CAS No.	TSCA	EINECSNo.	Concentration range (wt%)
Xylenes	1330-20-7	Registered	2155357	30- 50
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Bronze powder	7440-66-6	Registered	2311753	10- 30
	7440-50-8	Registered	2311596	
Resin	Registered	Registered	Polymer	10- 30

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

## **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire. Electrostatic charges may be generated by flow, agitation, etc.

<1-Propanol, 2-methyl->

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

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

## 4. FIRST-AID MEASURES

Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately. Skin contact:

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

Eye contact:

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

Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 3.7g]

5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

Suitable<br/>Large fires: regular dry chemical, carbon dioxide, water, regular foam<br/>: Use regular foam or flood with fine water spray.Fire fighting: Move container from fire area if it can be done without risk.<br/>Use extinguishing agents appropriate for surrounding fire.<br/>Avoid inhalation of material or combustion by-products.<br/>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	:	Take/Soak up with absorbent.
	:	In accordance with national, state and local regulations.

## 7. HANDLING AND STORAGE

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

#### Handling:

Technical measures	: Don't swallow ink.	
	: Recap after use.	
	: Keep out of the reach of children.	
	: Avoid contact with skin and eyes.	
Precautions	: Use only in well-ventilated areas.	
	: Don't breathe the vapor.	
Safe handling advice	: Not available.	
Storage:		
Technical measures	: Keep away from oxidizing materials	, ignition sources and
	high temperature.	-
Storage condition	: Avoid direct sunlight.	
-	: Keep away from heat sources.	
	: Recommended temperature: 0-30 C.	
Incompatible products	: (Information of components.)	
oxidizing materials, com	bustible materials, acids, amines,	Xylene
acids, bases, oxidizing m	aterials, combustible materials	Benzene, ethyl-
strong acids, oxidizing a	gents	Bronze powder
oxidizing materials		Resin
Packaging materials	: Not applicable.	

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#### 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA	Xylene / Benzene, ethyl-
ACGIH	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
	10mg/m3(Nuisance partuculate)	Resin
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment : General persons are not required,

but alcohol allergy persons recommended.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### [ ]: Information of components.

Physical state and form	: Low viscous liquid.	
Colour	: Gold.	
Odour	: Aromatic odour.	
pH	: Not applicable.	
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]	
Melting point	: Not available.	
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]	
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]	
Explosion limits	: Not applicable.	
[Lower flammable limit / 0.8%, Upper flammable limit / 6.7% <benzene, ethyl-="">]</benzene,>		
Density	: about 1.2 / 25 C	
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]	
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]	
Evaporation rate	: Not available. [Xylene/ 0.6]	
Volatile	: 47-50%	

## **10. STABILITY AND REACTIVITY**

Stability	: Stability.		
Hazardous reactions	: Will not occur.		
Conditions to avoid	: Avoid heat, flames, sparks and other s Avoid contact with incompatible mate	0	
0	combustible materials, acids, amines, base ng materials, combustible materials	es Xylene Benzene, ethyl- Bronze powder Resin	
Hazardous decomposition products oxides of carbon, water Toxic fumes of zinc oxide.: (Information of components.) common decomposition products Bronze powder			
miscellaneous decon	position products.		

## 11.TOXICOLOGICAL INFORMATION

(Information of components)

#### Acute toxicity Ingestion LD50 2119mg/kg-Mouse Xylene 3500mg/kg-Rat Benzene, ethyl-Inhalation LC50 5000ppm-4H-Rat **Xylene** Skin LD50 >1700mg/kg-Rabbit **Xylene** Benzene, ethyl-17800uL/kg-Rabbit Local effects Irritant; inhalation, skin, eye Xylene / Benzene, ethyl-Chronic toxicity and long term toxicity The liquid defats the skin. The substance may have effects on the **Xylene**

central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

Signs and Symptos of overexposure and aggravated by exposure

irritation,nausea	Xylene
irritation, difficulty breathing	Benzene, ethyl-
irritation,blisters	Xylene
irritation, absorption	Benzene, ethyl-
irritation,burn	Xylene
irritation,tearing	Benzene, ethyl-
irritation,nausea	Xylene
nausea,vomiting	Benzene, ethyl-
IARC Group 3	Xylene
IARC Group 2B	Benzene, ethyl-
	irritation, difficulty breathingirritation, blistersirritation, absorptionirritation, burnirritation, tearingirritation, nauseanausea, vomitingIARC 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 : 960820

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#### **15. REGULATORY INFORMATION**

Regulations (Information of components) Hazardous chemicals (OSHA HCS)	: Xylene / Benzene, ethyl-		
EU labeling 12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10 25%<=Xn;R20, F;R11 R10	: Xylene : Benzene, ethyl- : Bronze powder		
CANADA Hazardous Products Act - Ingredien 0.1%over	t Disclosure List : Benzene, ethyl-		
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

## Safety data sheet for chemical products

#### **1. PRODUCT AND COMPANY IDENTIFICATION**

#### Product name: PX-21 Silver [PAINT MARKER]

Manufacture's name	: MITSUBISHI PENCIL CO.,LTD.
Address	: 5-23-37, HIGASHIOHI, SHINAGAWA, TOKYO, JAPAN
Telephone number	: 03-3458-6281 Telefax number : 03-3450-0363
Telex number	: 2422337 MBPENC J.
Creation Date	: May 14, 2001
Revision Date	: Jan. 5, 2007
File No.	: 030115A Rev. 2.5.02.05

#### 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%)
Xylenes	1330-20-7	Registered	2155357	50-80
(Benzene, ethyl-)	100-41-4	Registered	2028494	
Resin	Registered	Registered	Polymer	10- 30
Aluminum paste	7429-90-5	Registered	2310723	10- 30
Petroleum solvents	Registered	Registered	Registered	< 10

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

## **3. HAZARDS IDENTIFICATION**

Most important hazards: Not available.Specific hazards: Information of components.

<Xylene><Benzene, ethyl->

MAJOR HEALTH HAZARDS: respiratory tract irritation, skin irritation, eye irritation, aspiration hazard, central nervous system depression

PHYSICAL HAZARDS: Flammable liquid and vapor. Vapor may cause flash fire.

Electrostatic charges may be generated by flow, agitation, etc.

<Aluminum paste>

MAJOR HEALTH HAZARDS: Causes respiratory tract irritation. May be iritating to skin and eyes. May cause convulsions.

PHYSICAL HAZARDS: Extremely flammable. May catch fire if exposed to air. May form flammable or explosive dust-air mixtures. May react with water.

#### 4. FIRST-AID MEASURES

#### Inhalation:

Remove from exposure area to fresh air immediately. Give artificial respiration if not breathing. Treat symptomatically and supportively. Get medical attention immediately.

#### Skin contact:

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

#### Eye contact:

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

#### Ingestion:

Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately, and show the MSDS to the physician then. [Ink quantity of product : about 2.9g]

## 5. FIRE-FIGHTING MEASURES

#### Exitinguishing media:

: regular dry chemical, carbon dioxide, water, regular foam
: Use regular foam or flood with fine water spray.
: Move container from fire area if it can be done without risk.
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

:	Not available.
:	Do not wash away into shower or water way.
:	Take/Soak up with absorbent.
:	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.
: Keep out of the reach of children.
: Avoid contact with skin and eyes.
: Use only in well-ventilated areas.
: Don't breathe the vapor.
: Not available.
: Keep away from oxidizing materials, ignition sources and
high temperature.
: Avoid direct sunlight.
: Keep away from heat sources.
: Recommended temperature: 0-30 C.

Incompatible products : (Information of components.)	
oxidizing materials, combustible materials, acids, amines, bases	Xylene
acids, bases, oxidizing materials, combustible materials	Benzene, ethyl-
oxidizing materials	Resin
acids, combustible materials, oxidizing materials, metals, metal	Aluminum paste
salts, bases, metal oxides, halogens, reducing agents, halo	_
carbons, peroxides, metal carbides	
acids, bases, oxidizing materials	Petroleum solvent

Packaging materials : Not applicable.

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Engineering measures : Local exhaust ventilation system are not required, but recommended.

#### Control parameters (Information of components.)

OSHA	100ppm(435mg/m3) TWA 15mg/m3(total dust), 5mg/m3(respirable fraction), 5mg/m3 (pyro powders)	Xylene / Benzene, ethyl- Aluminum paste
	5mg/m3	Petroleum solvent
ACGIH	100ppm TWA, 150ppm STEL	Xylene
	100ppm TWA, 125ppm STEL	Benzene, ethyl-
	10mg/m3(Nuisance partuculate)	Resin
	10mg/m3 TWA(metal perticulate), 5mg/m3 TWA(pyro powders)	Aluminum paste
	5mg/m3 TWA, 10mg/m3 STEL	Petroleum solvent
EC	50ppm TWA, 100ppm STEL	Xylene
	100ppm TWA, 200ppm STEL	Benzene, ethyl-

Personal protective equipment

: General persons are not required, but alcohol allergy persons recommended.

#### 9. PHYSICAL AND CHEMICAL PROPERTIES

[ ]: Information of components.

Physical state and form	: Low viscous liquid.	
Colour	: Silver.	
Odour	: Aromatic odour.	
pН	: Not applicable.	
Boiling point	: Not available. [Benzene, ethyl-/ 136 C]	
Melting point	: Not available.	
Flash point	: Not available. [Benzene, ethyl-/ 15 C(CC)]	
Autoignition temperature	: Not available. [Benzene, ethyl-/ 432 C]	
Explosion limits	: Not applicable.	
[Lower flammable limit / 0.8%, Upper flammable limit / 6.7% <benzene, ethyl-="">]</benzene,>		
Density	: about 1.0 / 25 C	
Vapour density (air=1)	: Not available. [Benzene, ethyl-/ 3.7]	
Solubulity in water	: Not available. [Benzene, ethyl-/ 0.015%]	
Evaporation rate	: Not available. [Xylene/ 0.6]	
Volatile	: 66-69%	

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## **10. STABILITY AND REACTIVITY**

Stability	: Stability.		
Hazardous reactions	: Will not occur.		
Conditions to avoid	: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.		
oxidizing materials, acids, bases, oxidizin oxidizing materials acids, combustible n metal salts, bases, n halo carbons, peroxi		Xylene Benzene, ethyl- Resin Aluminum paste	
acids, bases, oxidizii	ng materials	Petroleum solvent	
Hazardous decomposition products: (Information of components.)oxides of carbon, watercommon decomposition productshydrocarbon gases, oxides of aluminum.Aluminum pastealdehyde.Petroleum solvent			

# 11.TOXICOLOGICAL INFORMATION

#### (Information of con nnonents)

(Information of com		
Acute toxicity		1
Ingestion LD50	0 0	Xylene
	3500mg/kg-Rat	Benzene, ethyl-
	>5000mg/kg-Rat	Aluminum paste
	>=5000mg/kg-Rat	Petroleum solvent
Inhalation LC5		Xylene
Skin LD50	>1700mg/kg-Rabbit	Xylene
	17800uL/kg-Rabbit	Benzene, ethyl-
Local effects In	ritant;inhalation, skin, eye	Xylene / Benzene, ethyl- /
		Petroleum solvent
Irritant; inhalation		Aluminum paste
Chronic toxicity an	d long term toxicity	
5	e .	cts on the Xvlene
The liquid defats t	he skin. The substance may have effe	
The liquid defats t central nervous sy	he skin. The substance may have effe stem. Exposure to the substance may	enhance
The liquid defats t central nervous sy hearing damage ca	he skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te	enhance sts show that
The liquid defats t central nervous sy hearing damage ca this substance pos	he skin. The substance may have effe stem. Exposure to the substance may	enhance sts show that
The liquid defats t central nervous sy hearing damage ca this substance pos development.	he skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te sibly causes toxicity to human reprod	enhance sts show that uction or
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe	the skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te sibly causes toxicity to human reprod	enhance sts show that uction or re to dust Aluminum paste
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe particules. The su	the skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te sibly causes toxicity to human reprod octed by repeated or prolonged exposur bstance may have effects on the nervo	enhance sts show that uction or re to dust Aluminum paste
The liquid defats to central nervous sy hearing damage ca this substance pose development. Lungs may be affer particules. The su resulting in impai	the skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te- sibly causes toxicity to human reprod acted by repeated or prolonged exposure bstance may have effects on the nervol- red functions.	enhance sts show that uction or re to dust Aluminum paste bus system,
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe particules. The su resulting in impai Signs and Symptos	he skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te sibly causes toxicity to human reprod acted by repeated or prolonged exposure bstance may have effects on the nervour red functions.	enhance sts show that uction or re to dust Aluminum paste sus system, by exposure
The liquid defats to central nervous sy hearing damage ca this substance pose development. Lungs may be affer particules. The su resulting in impai	the skin. The substance may have effective stem. Exposure to the substance may aused by exposure to noise. Animal tensibly causes toxicity to human reproducted by repeated or prolonged exposure bstance may have effects on the nervological red functions. of overexposure and aggravated to irritation, nausea	enhance sts show that uction or re to dust Aluminum paste bus system, oy exposure Xylene / Petroleum solvent
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe particules. The su resulting in impai Signs and Symptos	the skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te- sibly causes toxicity to human reprod acted by repeated or prolonged exposure bstance may have effects on the nervor red functions. of overexposure and aggravated b irritation,nausea irritation,difficulty breathing	enhance sts show that uction or re to dust Aluminum paste bus system, y exposure Xylene / Petroleum solvent Benzene, ethyl-
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe particules. The su resulting in impai Signs and Symptos Inhalation	the skin. The substance may have effe stem. Exposure to the substance may aused by exposure to noise. Animal te- sibly causes toxicity to human reprod ected by repeated or prolonged exposure bstance may have effects on the nervor red functions. of overexposure and aggravated to irritation,nausea irritation,difficulty breathing irritation,cough	enhance sts show that uction or re to dust Aluminum paste ous system, ey exposure Xylene / Petroleum solvent Benzene, ethyl- Aluminum paste
The liquid defats t central nervous sy hearing damage ca this substance pos development. Lungs may be affe particules. The su resulting in impai Signs and Symptos	the skin. The substance may have effectives and the substance may have effective by exposure to noise. Animal tensibly causes toxicity to human reproducted by repeated or prolonged exposure botance may have effects on the nervological stance stance may have effects on the nervological stance stance may have effects on the nervological stance s	enhance sts show that uction or re to dust Aluminum paste system, y exposure Xylene / Petroleum solvent Benzene, ethyl- Aluminum paste Xylene
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Eye contact	irritation,burn	Xylene
·	irritation,tearing	Benzene, ethyl-
	irritation,eye damage	Aluminum paste
	irritation	Petroleum solvent
Ingestion	irritation,nausea	Xylene / Petroleum solvent
	nausea,vomiting	Benzene, ethyl-
	irritation, digestive disorders	Aluminum paste
Specific effects	IARC Group 3	Xylene
1.	IARC Group 2B	Benzene, ethyl-

### 12. ECOLOGICAL INFORMATION

Not available.

### 13. DISPOSAL CONSIDERATIONS

Waste from residues : Disposal in accordance with all current regulations and standards. Contaminated packaging : Not applicable.

### 14. TRANSPORT INFORMATION

HS Code : 960820

#### **15. REGULATORY INFORMATION**

Regulations (Information of components)		
Hazardous chemicals (OSHA HCS)	: Xylene / B	Benzene, ethyl- / Aluminum paste /
	Petroleum	ı solvent
EU labeling		
12.5%<=Xn;R20/21<20%<=Xn;R20/21-38, R10		: Xylene
25%<=Xn;R20, F;R11		: Benzene, ethyl-
F;R15-17		: Aluminum paste
10%<=Xn;R65		: Petroleum solvent
CANADA Hazardous Products Act - In	gredient Dis	sclosure List
0.1%over	: Benzene, ethyl-	
1%over	: Aluminun	n paste / Petroleum solvent
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**