

# Material Safety Data Sheet

**Product name**

**9009 Opaque PU**

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product name 9009 Opaque PU

Recommended use of the chemical and restrictions on use

Recommended use Not available

Restrictions on use Not

available Supplier

Name 3820 William Richardson Dr.

Address South Bend, IN 46628

Telephone No (Tel) 800-634-7523

## 2. HAZARDS IDENTIFICATION

Hazard Classification Flammable liquid: Category 2  
Self-heating substances and mixtures: Category 1  
Serious eye damage / eye irritation: Category 1  
Carcinogenic: Category 2  
Reproductive toxicity: Category 1B  
Specific target organ toxicity (single exposure): Category 1  
Specific target organ toxicity (repeated exposure): Category 1

Label elements including precautionary statements

Symbol



Signal word

Danger

Hazard statements

H225 Highly flammable liquid and vapor H251 Self-heating; It may catch fire H318 Causes serious eye damage H351 Suspected of causing cancer  
H360 May cause damage to the fetus or reproductive ability H370 Causes damage to the body of the (...)  
If prolonged or repeated exposure H372 Causes damage to (...) of the body

Precautionary statements

Prevention

P201 Obtain special instructions before use.  
All safety precautions have been read and understood P202 Do not handle until.  
P210 heat, flames, sparks · Keep away from hot surfaces. – No smoking.



P233 Keep container tightly closed.

And maintain a low temperature P235 + P410 Avoid direct sunlight.



Bonded to the container and receiving equipment P240 Keep or ground.

Prevention

P241 explosion-proof electrical, ventilating, lighting, (...), please use the equipment.  
 Please use only non-sparking tools P242.  
 P243 Take precautionary measures against static discharge.  
 (A) to P260 (dust, fumes, gas, vapor, mist, spray) Do not breathe.  
 P264 Wash thoroughly after handling the treated area.  
 When using this product P270 Do not eat, drink, 3820or smoke.  
 Wear P280 (eye or face protection, protective gloves, protective) (a).

Corresponding off.

P303 + P361 + P353 IF ON SKIN (or hair) all contaminated clothing IF ON Take  
 off.  
 Rinse skin with water / shower.  
 Wash IF ON P305 + P351 + P338 eyes cautiously with water for several minutes. Remove contact lenses, if possible. Continue rinsing.  
 P308 + P311 If exposed or concerns, call a poison center or physician.  
 P308 + P313 If exposed or concerned about exposure Get medical attention.  
 P310 Immediately call a poison center or physician.  
 If you feel uncomfortable P314 Get medical attention.  
 Keep the P321 (...) treatment.

Storage

To turn off the lights when P370 + P378 fire (...) to (a) Please use.  
 Keep the P403 + P235 Keep cool and well-ventilated.  
 Store in a storage place with P405 lock.  
 Please maintain the distance between P407 cargo.  
 Since the P413 highly reactive substances (...) while it is kept in kg or more (...) Please be careful not to exceed °C.  
 P420 Store in the quarantine and other materials.

Disposal

(Depending on the content specified in the relevant legislation) P501  
 Dispose of contents of the container.

Hazard classification not included in other Hazard (NFPA)

Carbon Black

Health	Not available
Fire	Not available
Reactivity	Not available

Dimethylformamide

Health	2
Fire	2
Reactivity	0

Methylethylketone

Health	1
Fire	3
Reactivity	0

POLY URETHANE RESIN

Health	Not available
Fire	Not available
Reactivity	Not available

SATURATED COPOLYESTER RESIN

Health	Not available
Fire	Not available
Reactivity	Not available



### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	Synonym	CAS No	Content (%)
Carbon Black		1333-86-4	1~15
Dimethylformamide	N, N-Dimethylformamide Dimethyl formamide N, N-Dimethylformamide	68-12-2	1~15
Methylethylketone	Methylethylketone 2-Butanone Methyl ethyl ketone (M.E.K) Methyl ethyl ketone (M.E.K)	78-93-3	1~10
POLY URETHANE RESIN		Trade secret	10~30
SATURATED COPOLYESTER RESIN		Trade secret	30~60

### 4. FIRST AID MEASURES

In case of eye contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if possible. Continue rinsing. : Get emergency medical aid
In case of skin contact /	SKIN (or hair) all contaminated clothing IF ON Take off. Rinse skin with water  shower. If you feel uncomfortable Get medical attention. Remove contaminated clothing and shoes and please isolate the contaminated area Prevent the spread when contaminated sites please contact Minor skin For a long time burned, immediately cool the affected area as soon as possible with cold water, clothes stuck to the skin. Do not remove Wash skin with soap and water
If inhaled	Immediately call a poison center or physician. Please move to a place with fresh air.
If swallowed	Exposure or exposure concerns Get medical attention. If eaten or inhale the substance, not the artificial respiration mouth-to-resuscitation Please use appropriate respiratory medical equipment
Other medical attention	Contact staff when exposed to document and keep track of such investigations. Keep medical personnel to recognize and take protective measures for those substances

### 5. FIRE – FIGHTING MEASURES

Proper (improper) extinguishing Proper (improper) extinguishing spray	This material digestion associated with alcohol foam, carbon dioxide or water  should be used Choking digestion, dry sand or earth should be used to
Specific hazards arising from the chemical Specific hazards arising from the chemical	Highly flammable liquid and vapor Unstable at room temperature. Vigorous polymerization reaction that can cause an explosion and fire Vapors may be ignited replaces the ignition source Irritation and highly toxic gases by thermal decomposition or combustion can occur while riding Flash point or more can form an explosive mixture Containers may explode when heated Highly flammable: heat, sparks, readily ignited by the flame



Water may leak a fire / explosion hazard  
Even after digestion can be re-  
ignition Upon contact with moisture  
can call



Firefighters should wear protective equipment and precaution

Carbon black

Indoor, outdoor, that the risk of steam explosions in sewers  
 Flammable / combustible materials  
 Some materials can fast flash, but not easy to ignite  
 Vapors can form explosive mixtures with air  
 Some may decompose explosively when to fire or heating  
 Nonflammable, substance itself decomposes when heated, but the ride may cause corrosive / toxic fumes

Rescuer Wear proper protective equipment.

Keep out of the area digestion by keeping a safe distance  
 Is melted to a temperature above the flashpoint Please be aware that shipping  
 After the tank fire fighting Evolution Make Cool containers with plenty of water  
 Or highs in the tank fire and pressure relief device you retire immediately if any discoloration of tanks  
 Please step away from tanks engulfed in fire and flames tank  
 For large fire tank fire Please leave ridden back off if using the device unattended digestion impossible

Dimethylformamide

Rescuer Wear proper protective equipment.  
 Keep out of the area digestion by keeping a safe distance

Most of the Vapors can spread along the ground heavier than air and accumulate in low areas and confined spaces  
 Extinguishing tank fire from maximum distance or when unattended please use the firefighting equipment  
 After the tank fire fighting Evolution Make Cool containers with plenty of water  
 Or highs in the tank fire and pressure relief device you retire immediately if any discoloration of tanks  
 Please step away from tanks engulfed in fire and flames tank  
 For large fire tank fire Please leave ridden back off if using the device unattended digestion impossible

Methyl ethyl ketone

Rescuer Wear proper protective equipment.  
 Keep out of the area digestion by keeping a safe distance

Most of the Vapors can spread along the ground heavier than air and accumulate in low areas and confined spaces  
 If it's not dangerous Move containers from fire area  
 It may be freezing when exposed to direct tank fire. Do not douche won or safety devices  
 Extinguishing tank fire from maximum distance or when unattended please use the firefighting equipment  
 After the tank fire fighting Evolution Make Cool containers with plenty of water  
 Or highs in the tank fire and pressure relief device you retire immediately if any discoloration of tanks  
 Please step away from tanks engulfed in fire and flames tank  
 For large fire tank fire Please leave ridden back off if using the device unattended digestion impossible

POLY URETHANE RESIN  
 available SATURATED COPOLYESTER RESIN Not available



## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency procedures	<p>(Dust, fumes, gas, vapor, mist, spray) to (a) Do not breathe. Very fine particles can cause a fire or explosion • Remove all sources of ignition.</p> <p>Wipe spills immediately that, PROTECTION. Follow the protest precautions. Please isolate the contaminated area.</p> <p>Or need to get people who do not meet the protective equipment Do not allow. Remove all sources of ignition. Please be sure to ground all equipment when handling the material Stop the leak if you can do it without risk</p> <p>Do not touch damaged containers or leaked water without wearing adequate protection It can be used for vapor suppression foam to reduce the steam generating When there is no fire, leak Wear protective front of the steam-type protection Please spread a plastic sheet covering the Max</p> <p>Please note that materials and conditions to avoid</p>
Environmental precautions	<p>Waterways, sewers, basements, prevent entry into confined spaces Built a levee for digestion Please collect the water.</p>
Methods for cleaning up	<p>Absorb the spill with inert material (i.e., dry sand or dirt) and put in a chemical waste container. Absorb the liquid and wash contaminated area with water and detergent. Dry sand / soil and Cover with plastic sheet to prevent spreading and contact with the back covered with a non-combustible material Blinded and liquid spills large spill to Make a ditch Use explosion-proof tools clean and place in covered plastic containers to collect the spillage and loose Using clean-proof tool Please collect the absorbed matter</p>

## 7. HANDLING AND STORAGE

Handling	<p>Do not handle until all safety precautions have been read and understood. Explosion-proof electrical, ventilating, lighting, (...), please use the equipment. Please use only non-sparking tools. Take precautionary measures against static discharge. Wash thoroughly after handling the treated area. Or eat when using this product Do not eat, drink, or smoke. The pressure, or cutting, welding, soldering, bonding, drilling, grinding Do not expose the uncovered or heat, flame, sparks, static electricity, or other sources of ignition. After the container is emptied because it may retain product residues. Follow all MSDS / Label precautions. Please use care in handling / storage. Please carefully open the cap before opening. Without proper ventilation. Do not enter the storage area. Please be sure to ground all equipment when handling the material Please note that materials and conditions to avoid Please note column To reduce the risk of oxygen deficiency when working in confined spaces Please lowlands working on the air concentration measurements of oxygen and ventilation</p>
Conditions for safe storage	<p>Heat, flames, sparks · Keep away from hot surfaces. - No smoking. Keep container tightly closed.</p>



Avoid direct sunlight and maintain a low temperature.  
Keep in a well-ventilated place. Keep cool.  
Store in a locked storage area.





Please maintain the distance between the cargo.

Since the highly reactive substances (...) while it is kept in kg or more (...) Please be careful not to exceed °C.

Please keep in isolation with other substances.

Empty drums are completely drained and properly prevents back into place immediately, please drums regulator properly placed.

Keep away from food and beverages.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits of chemical and biological exposure limits, etc.

### National regulations

Carbon black	TWA - 3.5mg/m <sup>3</sup>
Dimethylformamide	TWA - 10ppm 30mg/m <sup>3</sup> (Skin)
Methyl ethyl ketone	TWA - 200ppm 590mg/m <sup>3</sup> STEL - 300ppm
885mg/m <sup>3</sup> POLY URETHANE RESIN	Not available
SATURATED COPOLYESTER RESIN	Not available

### ACGIH regulations

Carbon black	TWA 3 mg/m <sup>3</sup>
Dimethylformamide	TWA 10 ppm
Methyl ethyl ketone	TWA 200 ppm
Methyl ethyl ketone	STEL 300 ppm
POLY URETHANE RESIN	Not

available SATURATED COPOLYESTER RESIN Not

available

### Biological exposure limits

Carbon black	Not available
Dimethylformamide	15 mg / L (N-Methyl formamide urine, collected at the end of work), 40 mg / L (urine of N-Acetyl-S- (N-methyl carbamoyl) cysteine, weekend work harvested at the end)
Methyl ethyl ketone	2 mg / L (urine of MEK, taken at the end of
work) POLY URETHANE RESIN	Not available
SATURATED COPOLYESTER RESIN	Not available

### Engineering Controls

Use process isolation, local exhaust ventilation, or other engineering controls to control Keep the air levels below the exposure guidelines.

### Engineering Controls

Save this material, or equipment that is used below to install the safety shower and washing equipment.

### Personal Protection

#### Respiratory Protection

Dimethylformamide	Skin
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## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Appearance	Solid, Film
Color	Black
Odor	Not available
Odor threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not
available Upper / lower flammability or explosive limits	



Not available Vapor pressure  
available  
Solubility

Not

Not available



**COUNT ON US**

Vapor density	Not available
Specific gravity	Not available
n-octanol / water partition coefficient	Not available
available Ignition temperature	Not available
available	
Decomposition temperature	Not available
Viscosity	Not available
Molecular Weight	Not available

**Carbon black**

Appearance	
Appearance	Not available
Color	Not available
Odor	Odorless
Odor threshold	Not available
pH	(Not available)
Melting point / freezing point	(About 3550 °C)
Initial boiling point and boiling range	4200 °C
Flash point	> 500 °C
Evaporation rate	(Not applicable)
Flammability (solid, gas)	Not available
available Upper / lower flammability or explosive limits	
Not available Vapor pressure	Not available
available	
Solubility	(Not melt)
Vapor density	(Not applicable)
Specific gravity	1.7-2.1
n-octanol / water partition coefficient	Not available
available Ignition temperature	900 °C
Decomposition temperature	Not available
Viscosity	Not available
Molecular Weight	12.01

**Dimethylformamide**

Appearance	
Appearance	Liquid
Color	Colorless to yellow
Odor	Fishy
Odor threshold	300 mg/m <sup>3</sup>
pH	6.7 (0.5mol / L aqueous solution)
Melting point / freezing point	-61 °C
Initial boiling point and boiling range	153 °C
Flash point	58 °C (c.c.)
Evaporation rate	<1 (butyl acetate = 1)
Flammability (solid, gas)	Not applicable
Upper / lower flammability or explosive limits	15.2 / 2.2 %
(100 °C) Vapor pressure	3.87 mmHg (25°C)
Solubility	(Availability)

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**COUNT ON US**

Vapor density	2.5 (air = 1)
Specific gravity	0.95 (water=1)
n-octanol / water partition coefficient	-0.87



**COUNT ON US**

Ignition temperature	445 °C
Decomposition temperature	Not available
Viscosity	0.802 CP (25°C)
Molecular Weight	73.09

Methyl ethyl ketone

Appearance	
Appearance	Liquid
Color	Colorless
Odor	Minty, sweet odor
Odor threshold	20 ppm
pH	Not available
Melting point / freezing point	-86 °C
Initial boiling point and boiling range	80 °C
Flash point	-9 °C (c.c.)

Evaporation rate	2.7 (ether = 1)
Flammability (solid, gas)	Not available
Upper / lower flammability or explosive limits	11.5 /
1.8 % Vapor pressure	90.6 mmHg (25°C)
Solubility	29 g/100ml (20°C)
Vapor density	2.41 (air=1)
Specific gravity	0.8 (water=1)
n-octanol / water partition coefficient	0.29
Ignition temperature	505 °C
Decomposition temperature	Not available
Viscosity	0.40 CP (25°C)
Molecular Weight	72.11

POLY URETHANE RESIN

Appearance	
Appearance	Liquid
Color	Colorless to yellow
Odor	Fishy
Odor threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not
available Upper / lower flammability or explosive limits	Not available
Not available Vapor pressure	Not available
available	
Solubility	Not available
Vapor density	Not available
Specific gravity	Not available
n-octanol / water partition coefficient	Not



available Ignition temperature  
available

Not

Decomposition temperature

Not available



Viscosity	Not available
Molecular Weight	Not available

SATURATED COPOLYESTER RESIN

Appearance	
Appearance	Pale granules
Color	yellow
Odor	Odorless
Odor threshold	Not available
pH	Not available
Melting point / freezing point	Not available
Initial boiling point and boiling range	Not available
Flash point	Not available
Evaporation rate	Not available
Flammability (solid, gas)	Not
available Upper / lower flammability or explosive limits	Not available
Vapor pressure (1732°C)	<1 mmHg (20°C)
Solubility	Not available
Vapor density	Not available
Specific gravity	Not available
n-octanol / water partition coefficient	Not
available Ignition temperature	Not available
available	
Decomposition temperature	Not available
Viscosity	0.73 ± 0.03 dl/g
Molecular Weight	Not available

## 10. STABILITY AND REACTIVITY

Chemical stability and the possibility of adverse reactions

Carbon black	Can be decomposed at a high temperature generates a toxic gas
Carbon black	Unstable at room temperature.
Carbon black	Friction, heat, sparks can be ignited by a flame
Carbon black	Powder, exploding into dust, debris, drilling, lathe, cutting, etc., or that can burn explosively
Carbon black	Even after digestion can be re-ignition
Carbon black	Flammable / combustible materials
Carbon black	Some materials can fast flash
Carbon black	Molten material that upon contact with the skin can cause serious burns to
eyes Carbon black	Contact with the skin can cause burns to the eyes
Carbon black	in case of fire may cause an irritating and toxic gases
Dimethylformamide	Flammable liquid and vapor
Dimethylformamide	Vigorous polymerization reaction that can cause an explosion and
fire Dimethylformamide	Flash point or more can form an explosive mixture
Dimethylformamide	Containers may explode when heated
Dimethylformamide	Highly flammable: heat, sparks, readily ignited by the
flame Dimethylformamide	Water may leak a fire / explosion hazard
Dimethylformamide	Indoor, outdoor, that the risk of steam explosions in



**COUNT ON US**

sewers Dimethylformamide  
Dimethylformamide  
ignition Dimethylformamide

Vapors can form explosive mixtures with air

Vapors can backfire (flash back), go to the source of

There may be toxic by inhalation and skin absorption





**COUNT ON US**

Methyl ethyl ketone	Highly flammable liquid and vapor
Methyl ethyl ketone	Vigorous polymerization reaction that can cause an explosion and
fire Methyl ethyl ketone	Flash point or more can form an explosive mixture
Methyl ethyl ketone	Containers may explode when heated
Methyl ethyl ketone	Highly flammable: heat, sparks, readily ignited by the
flame Methyl ethyl ketone	Water may leak a fire / explosion hazard
Methyl ethyl ketone	Indoor, outdoor, that the risk of steam explosions in
sewers Methyl ethyl ketone	Vapors can form explosive mixtures with air
Methyl ethyl ketone	Vapors can backfire (flash back), go to the source of
ignition Methyl ethyl ketone	Vapors may cause dizziness or asphyxiation without
awareness	
POLY URETHANE RESIN	Not available
ATURATED COPOLYESTER RESIN	Not available
Methyl ethyl ketone	Irritation to skin and eyes and if inhaled or in contact with icing
image Conditions to avoid	
Carbon black	Friction, heat, sparks, flame
Carbon black	Heat, sparks, open flame ignition sources such as
Carbon black	Drilling, lathe cutting, such as dust and debris generated
Dimethylformamide	Heat, flames, sparks · Keep away from hot surfaces. - No
smoking. Methyl ethyl ketone	Heat, flames, sparks · Keep away from hot surfaces. - No
smoking.	
POLY URETHANE RESIN	Not available
ATURATED COPOLYESTER RESIN	Not
available Materials to avoid	
Carbon black	Not available
Dimethylformamide	Not available
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	
Hazardous decomposition products	
Carbon black	Pungent, toxic gas
Dimethylformamide	Irritation and highly toxic gases by thermal decomposition or combustion can occur while riding
Methyl ethyl ketone	Irritation and highly toxic gases by thermal decomposition or combustion can occur while riding
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

## 11. TOXICOLOGICAL INFORMATION

Information on the likely routes of exposure

Carbon black	It may cause irritation.
Dimethylformamide	Not available
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

Health Hazard

Information Acute

Toxicity

oral

Carbon black	LD50 15400 mg/kg Rat
Dimethylformamide	LD50 2800 mg/kg Rat

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## COUNT ON US

Methyl ethyl ketone	LD50 2737 mg/kg Rat
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available Transdermal	
Carbon black	LD50 3000 mg/kg Rabbit
Dimethylformamide	LD50 4720 mg/kg Rabbit
Methyl ethyl ketone	LD50 6480 mg/kg Rabbit



**COUNT ON US**

POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available  
inhale

Carbon black Not available

Dimethylformamide Steam LC50 9400 mg / m<sup>3</sup> 2 hr. Mouse (4.7mg / L 4 hours, less than 90% of the estimated steam saturation vapor pressure)

Methyl ethyl ketone Vapor LC50 32 mg / l 4 hr. Mouse  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available

**Skin corrosion or irritation**

Carbon black Not available

Dimethylformamide Non-irritating (Rabbit), Mild (Human)

Methyl ethyl ketone Moderate irritation (Rabbit)  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available

**Serious eye damage or irritation**

Carbon black Not available

Dimethylformamide Severe irritation (Rabbit)

Methyl ethyl ketone It appears not to be irritating by vapor exposure in humans.  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available  
Respiratory sensitization

Carbon black Not available

Dimethylformamide Not available

Methyl ethyl ketone Not available  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available

**Skin sensitization**

Carbon black Not available

Dimethylformamide Not available

Methyl ethyl ketone Not available  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available

**Carcinogenic**

**Occupational Health and Safety Act**

Carbon black Not available

Dimethylformamide Not available

Methyl ethyl ketone Not available  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available

**Ministry of Employment and Labor Notice**

Carbon black 2

Dimethylformamide Not available

Methyl ethyl ketone Not available  
POLY URETHANE RESIN Not available  
ATURATED COPOLYESTER RESIN Not available  
IARC

Carbon black 2B

Dimethylformamide 3

Methyl ethyl ketone Not available



**COUNT ON US**

POLY URETHANE RESIN Not  
available ATURATED COPOLYESTER RESIN Not  
available OSHA

Carbon black	Not available
Dimethylformamide	Not available
Methyl ethyl ketone	Not available



**COUNT ON US**

POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available ACGIH

Carbon black A3  
 Dimethylformamide A4

Methyl ethyl ketone Not available  
 POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available NTP

Carbon black Not available  
 Dimethylformamide Not available  
 Methyl ethyl ketone Not available

POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available EU CLP

Carbon black Not available  
 Dimethylformamide Not available  
 Methyl ethyl ketone Not available

POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available

Germ cell mutagenicity

Carbon black Not available  
 Dimethylformamide Mutagenicity testing positive in vivo somatic  
 Methyl ethyl ketone Mammalian erythrocyte micronucleus test using  
 Voice POLY URETHANE RESIN Not available

Reproductive toxicity

Carbon black Not available  
 Dimethylformamide \* Employment and Labor Notice 1B

Methyl ethyl ketone by inhalation exposure in rats showed delayed bone abnormalities, mutations of the fetus is not determined.

POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available

Specific target organ toxicity (single exposure)

Carbon black Not available

Dimethylformamide Eating disorder in humans, vomiting, abdominal, lumbar, followed by pain in the thigh showing symptoms also disappeared fibrosis of the liver, it appears like a wall thickening in the lung ground cherry in experimental animals

Methyl ethyl ketone in the rat or mouse inhalation exposure test results appear in the relatively low concentration the effect on the central nervous system. It appears also affect the kidneys at concentrations in the rat courtyard. This prayer appears irritant by inhalation exposure in humans.

POLY URETHANE RESIN Not  
 available ATURATED COPOLYESTER RESIN Not  
 available

Specific target organ toxicity (repeated exposure)

Carbon black the impact of waste on the reference value in the range of Category 1 and pneumoconiosis in the rat inhalation studies of people (epidermal hyperplasia, growth, pulmonary fibrosis, cell proliferation of lung ground cherry, etc.)

Dimethylformamide Causes failed liver function in humans, hepatocellular hypertrophy in experimental animals' centrality of Futaba, acute hepatocellular injury, SGPT and SGOT activity rises, appears in the pathologic changes in the liver of young animals

Methyl ethyl ketone It appears the sensation of numbness in the hands and arms person. It appears central nervous disorder.



**COUNT ON US**

POLY URETHANE RESIN                      Not  
available ATURATED COPOLYESTER RESIN                      Not  
available

Aspiration Hazard

Carbon black                      Not available



**COUNT ON US**

Dimethylformamide	Not available
Methyl ethyl ketone	Ketones less than 13 carbon atoms
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available

## 12. Impact on the environment

### Ecotoxicity

#### Fish

Carbon black	Not available
Dimethylformamide	LC50 7100 mg/ℓ 96 hr. Lepomis macrochirus
Methyl ethyl ketone	LC50 3220 mg/ℓ 96 hr. Pimephales promelas
POLY URETHANE RESIN	Not available
ATURATED COPOLYESTER RESIN	Not available

#### Shellfish

Carbon black	EC50 5600 mg/ℓ 24 hr.
Dimethylformamide	EC50 4500 mg/ℓ 48 hr. Daphnia magna
Methyl ethyl ketone	EC50 5091 mg/ℓ 48 hr. Daphnia magna
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available

#### Birds

Carbon black	Not available
Dimethylformamide	EC50 > 500 mg/ℓ 96 hr. Scenedesmus subspicatus
Methyl ethyl ketone	EC50 > 500 mg/ℓ 96 hr. Skeletonema costatum
POLY URETHANE RESIN	Not available
ATURATED COPOLYESTER RESIN	Not available

### available Persistence and degradability

#### Persistence

Carbon black	Not available
Dimethylformamide	log Kow -0.87
Methyl ethyl ketone	log Kow 0.29
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available

#### Degradability

Carbon black	Not available
Dimethylformamide	Not available
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available

### Bio accumulative

#### accumulative

Carbon black	Not available
Dimethylformamide	BCF 0.3 ~ 1.2
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available

#### Biodegradable

Carbon black	Not available
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Dimethylformamide	100 (%) 14 days
Methyl ethyl ketone	89 (%) 20 days
Mobility in soil	
Carbon black	Not available





**COUNT ON US**

Dimethylformamide	Not available
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	
Other adverse effects	
Carbon black	Not available
Dimethylformamide	Not available
Methyl ethyl ketone	Not available
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	

### 13. Disposal Considerations

Methods of disposal

Carbon black	If specified in the Waste Management Act Dispose of contents and container in accordance with regulations.
Dimethylformamide	If specified in the Waste Management Act Dispose of contents and container in accordance with regulations.
Methyl ethyl ketone	1) Keep treated with neutralization and hydrolysis and oxidation and reduction. 2) Keep the high temperature incineration or hot-melt processing. 3) Keep the solidification process.
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	

Disposal Considerations

Carbon black	(Depending on the content specified in the relevant legislation) Dispose of the container contents.
Dimethylformamide	(Depending on the content specified in the relevant legislation) Dispose of the container contents.
Methyl ethyl ketone	(Depending on the content specified in the relevant legislation) Dispose of the container contents.
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	

### 14. TRANSPORT INFORMATION

UN No.

Carbon black	1361
Dimethylformamide	2265
Methyl ethyl ketone	1193
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	

Proper Shipping Name

Carbon black	Carbon (the flora and fauna personal) (CARBON animal or vegetable origin)
Dimethylformamide	N, N- dimethylformamide (N, N-DIMETHYLFORMAMIDE)
Methyl ethyl ketone	Ethyl methyl ketone (methyl ethyl ketone) (METHYL ETHYL KETONE (METHYL ETHYL KETONE))
POLY URETHANE RESIN	Not available
available ATURATED COPOLYESTER RESIN	Not available
available	

Hazard class

Packing



**COUNT ON US**

Carb	hyl ethyl ketone	3
on	POLY URETHANE RESIN	Not
blac	available ATURATED COPOLYESTER RESIN	Not
k 4.2	available	
Dim		
ethy	Carbon black	II or III
lfor	Dimethylformamide	III
ma	Methyl ethyl ketone	II
mid	POLY URETHANE RESIN	Not
e 3	available ATURATED COPOLYESTER RESIN	Not
Met	available	
Marine pollutants		



**COUNT ON US**

Carbon black	Not available
Dimethylformamide	Non-applicable
Methyl ethyl ketone	non-applicable
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

Transport in relation to the user needs to know, or any special safety measures in case of fire emergency

Carbon black	F-A
Dimethylformamide	F-E
Methyl ethyl ketone	F-E
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

In case of spill emergency

Carbon black	S-J
Dimethylformamide	S-D
Methyl ethyl ketone	S-D
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

## 15. Regulatory Information

Occupational Safety and Health Act

Carbon black	Exposure limits set material
Dimethylformamide	Management Harmful Substances
Dimethylformamide	Working environment measurement target substance (measurement period: 6 months)
Dimethylformamide	Special medical examination the substance (diagnostic period: 6 months)
Dimethylformamide	Exposure limits set material
Dimethylformamide	Limits set material
Methyl ethyl ketone	Management Harmful Substances
Methyl ethyl ketone	Working environment measurement target substance (measurement period: 6 months)
Methyl ethyl ketone	Special medical examination the substance (diagnostic period: 12 months)
Methyl ethyl ketone	Exposure limits set material

Hazardous Chemicals Control Act

Carbon black	Not available
Dimethylformamide	Toxic substances
Methyl ethyl ketone	Awareness materials
Methyl ethyl ketone	Toxic substances
POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

Dangerous Goods Safety Management Law

Carbon black	Not available
Dimethylformamide	4 The second kind of petroleum (water-soluble) 2000 ℓ
Methyl ethyl ketone	the first four kinds of petroleum (a non-aqueous liquid)
200 ℓ POLY URETHANE RESIN	Not available
ATURATED COPOLYESTER RESIN	Not

available Waste Control Act

Carbon black	Not available
Dimethylformamide	Not available
Methyl ethyl ketone	Hazardous waste



**COUNT ON US**

POLY URETHANE RESIN	Not
available ATURATED COPOLYESTER RESIN	Not
available	

By other domestic and foreign regulatory

National regulation

POPs Control Act



**COUNT ON US**

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
available ATURATED COPOLYESTER RESIN	Not applicable
available	

Foreign regulatory

USA management information (OSHA Regulation)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
available ATURATED COPOLYESTER RESIN	Not applicable
available	

USA management information (CERCLA Regulation)

Carbon black	Not applicable
Dimethylformamide	45.3599 kg 100 lb.
Methyl ethyl ketone	2267.995 kg 5000 lb.
POLY URETHANE RESIN	Not applicable
available ATURATED COPOLYESTER RESIN	Not applicable
available	

USA management information (EPCRA 302 Regulation)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
applicable ATURATED COPOLYESTER RESIN	Not applicable
applicable	

USA management information (EPCRA 304 Regulation)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
applicable ATURATED COPOLYESTER RESIN	Not applicable
applicable	

USA management information (EPCRA 313 Regulation)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
applicable ATURATED COPOLYESTER RESIN	Not applicable
applicable	

USA management information (materials Rotterdam Convention)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
applicable ATURATED COPOLYESTER RESIN	Not applicable
applicable	

USA management information (Stockholm Convention substances)

Carbon black	Not applicable
Dimethylformamide	Not applicable



**COUNT ON US**

Methyl ethyl ketone	Not applicable
POLY URETHANE RESIN	Not applicable
ATURATED COPOLYESTER RESIN	Not applicable

USA management information  
(Montreal Protocol on Substances)

Carbon black	Not applicable
Dimethylformamide	Not applicable
Methyl ethyl ketone	Not applicable



#### COUNT ON US

POLY URETHANE RESIN Not applicable  
ATURATED COPOLYESTER RESIN Not applicable

#### EU classification (Classification)

Carbon black Not applicable  
Dimethylformamide Repr. Cat. 2; R61Xn; R20/21Xi; R36  
Methyl ethyl ketone F; R11Xi; R36R66R67  
POLY URETHANE RESIN Not applicable  
ATURATED COPOLYESTER RESIN Not applicable

#### EU classified information (Risk phrases)

Carbon black Not applicable  
Dimethylformamide R61, R20/21, R36  
Methyl ethyl ketone R11, R36, R66, R67  
POLY URETHANE RESIN Not applicable  
ATURATED COPOLYESTER RESIN Not applicable

#### EU classified information (safety phrases)

Carbon black Not applicable  
Dimethylformamide S53, S45  
Methyl ethyl ketone S2, S9, S16  
POLY URETHANE RESIN Not applicable  
ATURATED COPOLYESTER RESIN Not applicable

## 16. OTHER INFORMATION

#### Source of data

##### Carbon black

Corporate Solution from Thomson Micromedex(<http://csi.micromedex.com>)  
ECB-ESIS (European chemical Substances Information System) (<http://ecb.jrc.it/esis>)  
ECOTOX Database, EPA(<http://cfpub.epa.gov/ecotox>)  
IUCLID Chemical Data Sheet, EC-ECB  
International Chemical Safety Cards  
(ICSC)(<http://www.nihs.go.jp/ICSC>) TOXNET, U.S. National Library of  
Medicine(<http://toxnet.nlm.nih.gov>)

The Chemical Database, The Department of Chemistry at the University of Akron(<http://ull.chemistry.uakron.edu/erd>)

##### Dimethylformamide

HSDB (smell) HSDB  
(Odor threshold)  
HSDB (pH)  
ICSC (Melting / freezing point) ICSC  
(Boiling range)  
ICSC (Flashpoint)  
ICSC (Explosion range of upper / lower limit) HSDB  
(Vapor pressure)  
ICSC(Solubility) ICSC  
(Vapor Density) ICSC  
(importance)  
ICSC (n- octanol / water partition coefficient)  
ICSC (Ignition temperature)  
IUCLID(Biodegradable)



**COUNT ON US**

Methyl ethyl ketone

HSDB (smell) HSDB

(Odor threshold)

HSDB (pH)

ICSC (Melting / freezing point)





**COUNT ON US**

ICSC (Boiling range)

ICSC (Flashpoint)

ICSC (Explosion range of upper / lower limit) HSDB

(Vapor pressure)

ICSC(Solubility)

ICSC (Vapor Density)

ICSC (importance)

ICSC (n- octanol / water partition coefficient)

ICSC (Ignition temperature)

IUCLID(Biodegradable)

Date First	2015-01-05
Revision number and date	
Revision number	1 times
Date of last revision	2016-01-06