

SAFTY DATA SHEET

Product name : DELPOWDER™
SDS reference number: AKDP-PW23(EN)
Prepared on: Mar. 14, 2018
Revised on: Aug. 1, 2020 (3)

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1. CHEMICAL AND COMPANY IDENTIFICATION

Product name : DELPOWDER™
SK420N, SK430N
SDS reference number : AKDP-PW23(EN)
Company name of supplier : Asahi Kasei Corporation
Address : Hibiya Mitsui Tower, 1-2, Yuraku-cho 1-chome,
Chiyoda-ku, Tokyo, 100-0006
Department in charge : Acrylic Resin Sales Department, MMA Division
TEL number : +81-3-6699-3286
FAX number : +81-3-6699-3460
Emergency contact : +81-44-271-4450 (<Weekdays> Mon-Fri: 9:00-18:00)
(Acrylic Resin Technology Development Department,
MMA Division)
Restriction on use : This product should not be used for medical equipment
and products that come into contact with human tissues
or body fluids in the long term (30 days or longer), as well
as for those that may come into contact with infants'
mouth or swallow.
If you are using this product for medical purposes not
listed above, for food and drinking-water contact
applications, for cosmetics, toys, sports applications, etc.,
please contact our Acrylic Resin Sales Department in
advance. You can consult individually.

2. HAZARDS IDENTIFICATION

[GHS Classification of the chemical] : Not applicable to the classification criteria.

[GHS label elements]

Pictogram or symbol : None
Signal word : None
Hazard statement : None
Precautionary statement

Health hazard : Although the chemical is powder form, it is easily to be
inhaled if dusty.
Pay attention to burns caused by heated polymer.

Physical and chemical hazard : The chemical is Designated flammable goods by Fire
Service Law.
Dust explosion hazard is caused if dust is generated.

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3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical substance/Mixture : Mixture
Chemical/general name : Methyl methacrylate / N-cyclohexylmaleimide copolymer

Component, concentration range, Official Gazette Reference No. and common numbers that can identify chemicals (CAS Registry No).

Component	Methyl methacrylate / N-cyclohexyl maleimide copolymer	Methyl methacrylate	N-cyclohexyl maleimide	Others
Concentration range	> 97.2 wt%	< 1.0 wt%	< 0.8 wt%	< 1.0 wt%
Official Gazette Reference No.	CSCL/ISHA* (6)-2084	CSCL/ISHA* (2)-1036	CSCL* (5)-5862 ISHA* 8-(1)-1785	All are existing chemical substances, but their numbers are trade secret and confidential
CAS Registry No.	105469-99-6	80-62-6	1631-25-0	Trade secret and confidential

*CSCL = Chemical Substances Control Law in Japan,
ISHA = Industrial Safety and Health Act in Japan

As other components, the product contains antioxidants, weather stabilizers, lubricants, color adjustment agents, and the like, if necessary.

4. FIRST AID MEASURES

If inhaled : If dust is inhaled, move to fresh air.
If you feel sick by inhaling gases generated from hot melts, immediately move to fresh air and wait for recovery. If not recover, get medical advice/attention.

If on skin : Remove powders from not only skin but also from clothing, shoes, etc. Rinse further with water.
If aggregates of generated gases from hot melts adhere, wash well with soapy water.
If the molten resin adheres, apply a large amount of water over the top of the clothing to cool it thoroughly. After that, remove the clothing and get medical advice/attention immediately.

If in eyes : If dust, etc. is in eyes, rinse with clean water for at least 15 minutes without rubbing because rubbing may damage eyes. Remove contact lenses, if present and easy to do.
If discomfort remains, get ophthalmologist advice/attention.

If swallowed : Rinse inside the mouth well with water. The product is not a dangerous substance. Do not induce vomiting.
If discomfort remains, get medical advice/attention.

Precaution for protection of the person who gives the first aid : Wear heat-resistant gloves when removing melted resin, etc.

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5. FIRE-FIGHTING MEASURES

Suitable fire extinguishing media	: Water, water spay, powder extinguisher, foam extinguisher.
Unsuitable fire extinguishing media	: No information available.
Specific hazards arising at fire	: Precaution should be taken because black smoke and gas containing harmful carbon monoxide and volatiles such as monomers are generated at fire due to thermal decomposition or incomplete combustion.
Specific fire fighting method	: Fire extinguishing should be done from windward side. If not dangerous to do, remove the combustion sources to the fire. Use powder extinguisher for an initial fire. In the case of a large-scale fire, it is effective to shut off the air using foam extinguisher.
Special protective equipment and precautions for fire-fighters	: Surely wear protective equipment such as self-contained breathing apparatus, protective clothing and protective gloves.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: If powders are scattered on roads or floors, they should be collected immediately because they are slippery.
Environmental precautions	: Because discharge of spilled materials to rivers, seas, etc. causes environmental pollution, collect all leaked materials quickly.
Methods and materials for containment and cleaning up	: In case of small quantities, sweep and collect with a vacuum cleaner, broom, etc. Scoop or sweep leaked materials and collect them in paper bags, drums, etc.
Prevention of secondary disaster	: Because the product is flammable, prohibit using of fire.

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7. HANDLING AND STORAGE

Handling

Engineering measures : Powders are a possibility of dust explosion, therefore it is necessary to take measures against residence of them.

To eliminate static electricity from equipment such as air transfer, bag filter and hopper, perform effective grounding. If necessary, perform dust explosion prevention measures such as using inert gases like nitrogen.

In the case of air transfer, surely perform measures to prevent dust explosions such as using lower transfer rate and lower oxygen concentration in the air, etc.

Precautions for safe handling : Handle in a well-ventilated area.

Contact avoidance : No information available.

Hygienic measures : Wash hands and face thoroughly with soap after handling.

Storage

Safe storage conditions : Store in a place protected from direct sunlight, away from ignition sources, and without abrupt temperature changes, water leakage, or high humidity.

Safe container materials : Since it is hygroscopic, use polyethylene bags, etc.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

Acceptable concentrations, etc. : It is appropriate to apply the following values:
The Japan Society for Occupational Health/2019
Acceptable concentration as Class 3 dust
Total dust: 8 mg/m³
Respirable dust: 2 mg/m³
ACGIH (American Conference of Governmental Industrial Hygienists)/2019
Recommended concentration as general dust
INHALABLE PARTICULATE: <10 mg/m³
RESPIRABLE PARTICULATE: < 3 mg/m³

Facility measures : If dust is generated, or steam/gas is generated by melt-kneading, etc., install an explosion-proof local exhaust ventilation system.

Protection equipment

Respiratory protection : Wear dust or powder mask to prevent inhalation of dust, etc.

Hand protection : It is preferable to use protective gloves made of rubber or resin so as not to touch the skin directly.

Eye/face protection : Wear protective glasses, goggles, etc. to prevent powder, etc. from entering the eyes.

Skin and body protection : Wear long-sleeved cuffs-closed working clothes to avoid direct skin contact.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Solid						
Color	: White						
Odor	: Almost none						
Melting/Freezing point	: There is no clear melting point, but the product softens gradually from around 110 °C.						
Boiling point, initial boiling point and boiling range	: No data available.						
Flammability	: Flammable substance.						
Explosion range							
Lower limit	: Not applicable.						
Upper limit	: Not applicable.						
	Powder may form explosible mixture gas. Though minimum ignition energy is larger than that of flour or coal powder, the ignition energy become smaller as particle size become smaller. Therefore, measures to prevent dust explosion is necessary. Of DELPOWDER measured by the Hartmann-type blow-up test method at us as a reference value. Indicates the dust explosion characteristic value.						
	<table><thead><tr><th><i>Ave. particle size (mm)</i></th><th><i>Lower explosion limit (g/m³)</i></th></tr></thead><tbody><tr><td>0.32 (0.6 % water content)</td><td>960~1,010</td></tr><tr><td>≤ 0.1 (0.7 % water content)</td><td>100</td></tr></tbody></table>	<i>Ave. particle size (mm)</i>	<i>Lower explosion limit (g/m³)</i>	0.32 (0.6 % water content)	960~1,010	≤ 0.1 (0.7 % water content)	100
<i>Ave. particle size (mm)</i>	<i>Lower explosion limit (g/m³)</i>						
0.32 (0.6 % water content)	960~1,010						
≤ 0.1 (0.7 % water content)	100						
Flash point	: Not applicable.						
Auto ignition point	: Not applicable.						
Decomposition point	: No data available						
pH	: Not applicable.						
Kinematic viscosity	: Not applicable.						
Solubility							
in water	: Insoluble.						
in other solvents	: Soluble in aromatic hydrocarbons and ester groups.						
n-octanol/water partition coefficient (log value)	: Not applicable.						
Vapour pressure	: No data available.						
Density and/or relative density	: 1.19-1.20 g/cm ³ (23°C)						
Relative gas density	: Not applicable.						
Particle characteristics	: Powder form: Approximately spherical Average particle size: 100-450 μm						

10. STABILITY AND REACTIVITY

Reactivity	: No self-reactivity.
Chemical stability	: Stable under general storage and handling.
Possibility of hazardous reactions	: No information available.
Conditions to avoid	: Storing at high temperature and high humidity.
Incompatible materials	: Burning materials, hot materials
Hazardous decomposition products	: Carbon monoxide, carbon dioxide, methyl methacrylate and N-cyclohexylmaleimide at high-temperature decomposition.
Others	: Generates NO _x during combustion

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11. TOXICOLOGICAL INFORMATION

* The product contains less than 1.0 % of methyl methacrylate and less than 0.8 % of N-cyclohexylmaleimide. Test data as mixture is not available, therefore hazard information on each component and GHS classifications as mixture are described below.

* This GHS classification is based on JIS Z 7252:2019 "Classification methods for chemicals, etc. based on GHS ". The hazard information of methyl methacrylate is based on the GHS classification result of National Institute of Technology and Evaluation.

	Resin component* ¹ Additives, etc.* ²	Methyl methacrylate	N-cyclohexyl maleimide	Classification as mixture
Content	*1: > 97.2 wt% *2: < 1.0 wt%	< 1.0 wt%	< 0.8 wt%	
Acute toxicity (oral)	Classification not possible	Not classified	Category 3	Classification not possible ((1) below)
Acute toxicity (dermal)	Classification not possible	Not classified	Classification not possible	Classification not possible ((2) below)
Acute toxicity (inhalation, vapour)	Classification not possible	Category 4 (LC50 = 7,093 ppm)	Classification not possible	Classification not possible ((3) below)
Skin corrosion/irritation	Classification not possible	Category 2	Category 2	Classification not possible ((4) below)
Serious eye damage/eye irritation	Classification not possible	Category 2	Category 2A	Classification not possible ((5) below)
Respiratory/skin sensitization	Classification not possible	Category 1 (Respiratory sensitization, skin sensitization)	Category 1 (Skin sensitization)	Classification not possible ((6) below)
Germ cell mutagenicity	Classification not possible	Classification not possible	Classification not possible	Classification not possible ((7) below)
Carcinogenicity	Classification not possible	Classification not possible	Classification not possible	Classification not possible ((8) below)
Reproductive toxicity	Classification not possible	Classification not possible	Classification not possible	Classification not possible ((9) below)
Specific target organ toxicity/systemic toxicity (single exposure)	Classification not possible	Category 1 (Respiratory system); Category 3 (Narcotic effects)	Classification not possible	Classification not possible ((10) below)
Specific target organ toxicity/systemic toxicity (repeated exposure)	Classification not possible	Category 1 (nervous system, respiratory system)	Classification not possible	Classification not possible ((11) below)
Aspiration hazard	Classification not possible	Classification not possible	Classification not possible	Classification not possible ((12) below)

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- (1) The product is classified as '**Classification not possible**' because classification of N-cyclohexylmaleimide is 'Category 3' based on LD50 = 130.3 mg/kg(male), 130.5 mg/kg(female) from an oral study in rats and classification of methyl methacrylate is 'Not classified' based on LD50 = 7,800 mg/kg from an oral study in rats (ACGIH (7th, 2015) and does not affect classification of the product.
 - (2) The product is classified as '**Classification not possible**' because classification of methyl methacrylate is 'Not classified' based on LD50 > 5,000 mg/kg from a dermal study in rabbits (EU-RAR (2002) and does not affect classification of the product.
 - (3) The product is classified as '**Classification not possible**' although classification of methyl methacrylate is 'Category 4' based on the report of LC50 = 7,093 ppm from a 4-hr inhalation study in rats (ECETOC JACC30 (1995), EU-RAR (2002) and ACGIH (7th, 2015)), but the content of methyl methacrylate is less than 1 % and does not affect classification of the mixture.
 - (4) The product is classified as '**Classification not possible**' although classification of methyl methacrylate is 'Category 2' and classification of N-cyclohexylmaleimide is 'Category 2' but the total content is less than 10 % and does not affect classification of the mixture; and the contents of other components of 'Classification not possible' are 1 % or more.
 - (5) The product is classified as '**Classification not possible**' although classification of methyl methacrylate is 'Category 2' and classification of N-cyclohexylmaleimide is 'Category 2A' but the total content is less than 10 % and does not affect classification of the mixture; and the contents of other components of 'Classification not possible' are 1 % or more.
 - (6) The product is classified as '**Classification not possible**' although containing methyl methacrylate of 'Category 1 (Respiratory sensitization, skin sensitization)' and N-cyclohexylmaleimide of 'Category 1 (Skin sensitization)' but each content is less than 1 % and regarded as 'Not classified'; but the contents of other components of 'Classification not possible' are 0.1 % or more.
 - (7) The product is classified as '**Classification not possible**' because classification of methyl methacrylate is 'Classification not possible' and the contents of other components of 'Classification not possible' are 0.1 % or more.
 - (8) The product is classified as '**Classification not possible**' because classification of methyl methacrylate is 'Classification not possible' and the contents of other components of 'Classification not possible' are 0.1 % or more.
 - (9) The product is classified as '**Classification not possible**' because classification of methyl methacrylate is 'Classification not possible' and the contents of other components of 'Classification not possible' are 0.1 % or more.
 - (10) The product is classified as '**Classification not possible**' although containing methyl methacrylate of 'Category 1 (Respiratory system); Category 3 (Narcotic effects)' but the content is less than 1 % and regarded as 'Not classified'; but the contents of other components of 'Classification not possible' are 1 % or more.
 - (11) The product is classified as '**Classification not possible**' although containing methyl methacrylate of 'Category 1 (respiratory system, nervous system)' but the content is less than 1 % and regarded as 'Not classified'; but the contents of other components of 'Classification not possible' are 1 % or more.
 - (12) The product is classified as '**Classification not possible**' because all components are classified as 'Classification not possible'.
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12. ECOLOGICAL INFORMATION

* The product contains less than 1.0 % of methyl methacrylate and less than 0.8 % of N-cyclohexylmaleimide. Test data as mixture is not available, therefore hazard information on each component and GHS classifications as mixture are described below.

* This GHS classification is based on JIS Z 7252:2019 "Classification methods for chemicals, etc. based on GHS ". The hazard information of methyl methacrylate is based on the GHS classification result of National Institute of Technology and Evaluation.

		Resin component* ¹ Additives, etc.* ²	Methyl methacrylate	N-cyclohexyl maleimide	Classification as mixture
Content		*1: > 97.2 wt% *2: < 1.0 wt%	< 1.0 wt%	< 0.8 wt%	
Ecotoxicity	Aquatic toxicity, Short term (acute)	Classification not possible	Category 3 (48hr EC50 = 48 mg/L)	Category 1 (96hr LC50 = 0.163 mg/L)	Classification not possible ((1) below)
	Aquatic toxicity, Long term (chronic)	Classification not possible	Not classified	Category 1	Classification not possible ((2) below)
Hazards to the Ozone layer		Classification not possible	Classification not possible	Classification not possible	Classification not possible ((3) below)

(1) The product is classified as '**Classification not possible**' although classification of methyl methacrylate is 'Category 3' and classification of N-cyclohexylmaleimide is 'Category 1' but each content is less than 1 % and does not affect classification of the mixture.

(2) The product is classified as '**Classification not possible**' although classification of methyl methacrylate is 'Not classified' and classification of N-cyclohexylmaleimide is 'Category 1' but each content is less than 1 % and does not affect classification of the mixture.

(3) The product is classified as '**Classification not possible**' because it does not contain components of the regulated substances listed in the Annex of the Montreal Protocol,

Persistence/degradability : No data available.
 Bioaccumulation : No data available.
 Mobility in soil : No data available.

13. DISPOSAL CONSIDERATION

Information on safe and environmental proper disposal or recycling of chemicals, polluted containers and packages

: In principle, dispose of by incineration or landfill. When incinerating, the particle size is increased by granulation to eliminate the risk of dust explosion, use incineration facilities to treat and incinerate in accordance with Air Pollution Control Act, etc. When landfilling, treat in accordance with "Waste Management and Public Cleansing Act". Or consign to a specialized disposal contractor approved by the prefectural governor.
 Do not dump or release in any oceans or waters to prevent marine pollution.
 Dispose of empty bags properly without reuse or diversion.

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14. TRANSPORT INFORMATION

International regulations

- UN number : Not applicable.
UN class : Not applicable.
Special safety precautions related to transportation or means of transportation : Confirm no breakage, etc. of the bag before transport. Load the product in a way that does not cause tumbling, falling or damaging. Make sure to take measures to prevent load shift.

Japanese regulations if applicable

- Marine regulations : Transport using the container and loading method in accordance with Act on Prevention of Marine Pollution and Maritime Disaster and Ship Safety Act.
Air regulations : Transport using the container and loading method in accordance with Civil Aeronautics Act.
Land regulations : Transport using the container and loading method in accordance with Road Act and Fire Service Act (Designated flammable goods (Synthetic resins)).

15. REGULATION INFORMATION

Name of the applicable laws/regulations, and information on regulations based on the laws/regulations in Japan

- Industrial Safety and Health Act (Article 57-2, Enforcement Order, Article 18-2, Attached Table 9) (Substances Subject to Notify Information on Danger or Harm, etc. (Notifiable Substance)) : Contains less than 1% of 'methyl methacrylate' (Cabinet Order Number: 557).
Fire Service Act : Designated flammable goods -Synthetic resins (3,000 kg or more)
Waste Management and Public Cleansing Act : Industrial Waste (Waste plastics)
Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof (PRTR Act) : Not applicable.
Poisonous and Deleterious Substances Control Act : Not applicable.

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16. OTHER INFORMATION

1. This Safety Data Sheet (SDS) was prepared based on the most recent materials and data currently available. It may be revised due to new findings.
2. The precautions in the SDS are intended for normal handling. If you treat specially, use the product after implementing safety measures appropriate for the intended usage and use method.
3. Confirm suitability of the product with laws and regulations, specifications and standards, restrictions on use, etc. for your usage and safety/suitability of required properties corresponding to the usage at your company's liability, and determine whether it can be used or not.
4. If there are compounding agents or additives used with this product, the safety should be investigated by your company.
5. When information on safety of the product is required, contact Acrylic Resin Sales Department, MMA Division, Asahi Kasei Corporation.
6. We pay careful attention to the content of the SDS, but we do not guarantee it.

Contact: Acrylic Resin Sales Department, Asahi Kasei Corporation
Telephone No.: +81-3-6699-3286
