

Product Name:	DAISO DAP Monomer	SDS No.	US-423100-20
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SAFETY DATA SHEET		OSAKA SODA CO., LTD.	
Product Name:	DAISO DAP Monomer		
Revised	February 26, 2024	SDS No.	US-423100-20

1. IDENTIFICATION

(a) Product identifier used on the label

Product name : DAISO DAP Monomer

(b) Other means of identification

Synonym(s) : Diallyl phthalate monomer

Product code : -

(c) Recommended use and restrictions on use of the chemical

General use : Crosslinking agent of insulating varnish, unsaturated polyester and reactive plasticizer of PVC

Restrictions : -

(d) Name, address, and telephone number of the chemical manufacturer

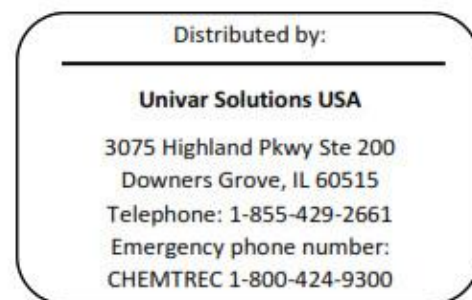
Company name : OSAKA SODA CO., LTD.

Address : 1-12-18, Awaza Nishi-ku, Osaka, 550-0011, Japan

Telephone number : +81-6-6110-1596

(e) Emergency Contact Tel. Number for 24 hours and 7 days a week

: Contact to : Chemtrec (American Chemistry Council)
2900 Fairview Park Drive | Falls Church, VA | 22042-4513
Account : OSAKA SODA (CCN 200359)
Domestic North America: +1-800-424-9300
International: +1-703-527-3887 (collect calls accepted)



2. HAZARD(S) IDENTIFICATION

(a) Classification of the chemical in accordance with paragraph (d) of 29 CFR 1910.1200

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Acute toxicity (oral) : Category 4, H302 (1)
 Acute toxicity (inhalation) : Category 4, H332 (1)
 Skin Sensitizer : Category 1, H317 (1)
 Specific target organ toxicity (single exposure) : Category 2, H371 (1)
 Specific target organ toxicity (repeated exposure): Category 2, H373 (1)
 Hazardous to the aquatic environment: Acute : Category 1, H400 (1)

(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accordance with paragraph (f) of 29 CFR 1910.1200

Signal word : Warning

Hazard statement(s) : H302 Harmful if swallowed
 H332 Harmful if inhaled
 H317 May cause an allergic skin reaction.
 H373 May cause damage to organs through prolonged or repeated exposure
 H400 Very toxic to aquatic life.

Symbol(s) :



Precautionary statement(s) : Obtain special instruction before use.
 Do not breathing mist / fume / gas / mist / vapours / spray.
 Wash hands thoroughly after handling.
 Do not eat, drink or smoke when using this product.
 Use only out doors or in a well-ventilated area.
 Contaminated work clothing must not be allowed out of the workplace.
 Avoid release to the environment.
 Wear protective gloves / protective clothing / eye protection / face protection.

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IF SWALLOWED: Call a POISON CENTER / doctor if you feel unwell.

Rinse mouth.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER / doctor if you feel unwell.

IF ON SKIN: Wash with plenty of water.

If skin irritation or rash occurs: Get medical advice / attention.

Specific treatment: see section 4 in this SDS.

Take off contaminated clothing and wash it before reuse.

Correct spillage.

Store locked up.

Dispose of contents/container in accordance with local / regional / national / international regulations.

(c) Hazards not otherwise classified

: Not applicable.

(d) Ingredient with unknown acute toxicity at a concentration $\geq 1\%$

: Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Wt%	CAS Registry No.	
Diallyl phthalate	>99	131-17-9	

4. FIRST-AID MEASURES

(a) Description of necessary measures

Inhalation : If inhaled, Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER / doctor if you feel unwell.

Eye : In case of contact, flush eyes with plenty of lukewarm water for at least 15 minutes. Get medical attention if irritation develops. Remove

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contact lenses if worn.

Skin

: In case of skin contact, Wash with plenty of water.

If skin irritation or rash occurs: Get medical advice / attention.

Take off contaminated clothing and wash it before reuse.

Ingestion

: If ingested, do not induce vomiting unless directed to do so by medical personnel. Get medical attention.

(b) Most important symptoms/effects, acute and delayed

: See Section 11 and Information on toxicological effects.

(c) Immediate medical attention and special treatment

: Not applicable

5. FIRE-FIGHTING MEASURES

(a) Extinguishing media

Suitable media

: All extinguishing media are suitable but method must take into account the surrounding area to minimize dispersion.

(b) Special hazards arising from the substance or mixture

: Decomposition products released in a fire (e.g. phthalic anhydride, oxides of carbon) should be considered as probably harmful if inhaled. Unknown risk of formation of toxic pyrolysis products.

(c) Special protective actions for precautions for fire-fighters.

: No unusual fire explosion hazards are anticipated.

6. ACCIDENTAL RELEASE MEASURES

(a) Personal precautions, protective equipments, and emergency procedures.

: Avoid mist formation. Use breathing apparatus if exposed to mist.

(b) Methods and materials for containment and cleaning up.

: Avoid raising mist. Take up mechanically. Dispose of absorbed material in accordance with the regulation.

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7. HANDLING AND STORAGE

(a) Precautions for safe handling

- : Avoid the formation and deposition of mist.
Provide vacuuming if mist raised.
The product is combustible.
Mist can form an explosive mixture with air.
Use barrier skin cream. Wash hands before breaks and after work.
Contaminated work clothing should not be allowed out of the workplace.
Take off contaminated clothing and wash before reuse.

(b) Conditions for safe storage, including any incompatibilities

- : Only use containers that are approved specifically for the substance / product.
Do not store together with oxidizing agents.
Keep container in a well-ventilated place.
Keep container tightly closed.
Keep in a cool place. Store in a dry place.
Store in a dark place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

(a) Exposure guidelines

- | | |
|------------------|--------------------|
| OSHA PEL | : Not established. |
| ACGIH TLV | : Not established. |
| Others | : Not established. |

(b) Appropriate engineering controls

- : Provide adequate ventilation. Keep container tightly closed.

(c) Individual protection measures, such as personal protective equipment

- | | |
|------------------------|---|
| Eye protection | : Wear safety goggles to prevent contact with eyes. |
| Skin protection | : Wear protective gloves for organic solvent. |

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Respiratory protection : Wear air-purifying respirator equipped with organic vapor cartridge or canisters.

9. PHYSICAL AND CHEMICAL PROPERTIES

(a) Appearance

Physical state : Liquid

Color : Colorless or slightly yellow liquid

(b) Odor : Characteristic odor 2)

(c) Odor threshold : -

(d) pH : 6.9-7.3 (20°C) 1)

(e) Melting point/freezing point : -70 °C 1)

(f) Initial boiling point and boiling range : 157 °C (6.7hPa) 1)

(g) Flash point : 166 °C (Closed cup)

(h) Evaporation rate : Not applicable.

(i) Flammability (solid, gas) : Flammable

(j) Upper/lower flammability or explosive limits : Not available.

(k) Vapor pressure : 0.213Pa(25°C) 1) 310Pa (150 °C) 3)

(l) Vapor density : 8.3(25 °C) (air = 1) 2)

(m) Relative density : 1.12 (20/20 °C) 2)

(n) Solubility : Soluble to most of organic solvent

(o) Partition coefficient (n-octanol / water) : 3.23 (OECD TG117) 1)

(p) Auto-ignition temperature : 435 °C (ASTM 2155)

(q) Decomposition : Not available.

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temperature

(r) Viscosity : Not available.

10. STABILITY AND REACTIVITY

(a) Reactivity : Stable at room temperature.

(b) Chemical stability : Stable at room temperature.

(c) Possibility of hazardous reactions : Hazardous polymerization may occur.

(d) Conditions to avoid : Direct ultraviolet rays, high pressure, high temperature, sparks, open flames, source of heat and conditions of oxidization.

(e) Incompatible materials : Strong acid, strong base and strong oxidizer.

(f) Hazardous decomposition products : Thermal decomposition will produce phthalic anhydride, allyl compounds or CO. Emits toxic fumes under fire conditions. (See also section 5)

11. TOXICOLOGICAL INFORMATION

(a) Acute dose effects : Oral
Based on the rat LD50 values of 656 (female), 891 (male), 896 (SIDS, 2004), and 970mg/kg bw (DFGOT vol.9, 2007), the substance was classified into Category 1)

Dermal

Based on the rabbit LD50 values of 3.4ml/kg, 3300, 3360, 3800 (SIDS, 2004), and 3800-3900mg/kg bw (DFGOT vol.9, 2007), the substance was classified into "Not classified" using JIS classification criteria (Category 5 in the United Nations classification). 1)

Inhalation

Its saturated vapour pressure concentration is 0.002mg/L (ICSC (2006)). Since the rat LC50 of 8.3mg/L (1h) (4-hour conversion: 2.1mg/L/4h) (SIDS, accessed in July 2008) is higher than its saturated vapour pressure concentration, its classification was done using concentration criteria for mists and mists. Based on this information, the substance was classified into Category 4. 1)

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(b) Aspiration hazard effects : Not data available. 1)

(c) Repeated dose effects : In 13-week oral administration tests using rats (Fischer 344) (GLP-compliant), symptoms such as cell degeneration around the portal veins at 50, 100, and 200mg/kg (males: 3/10, 2/10 and 9/10; and females: 0/0, 8/10, 10/10), necrosis at 200mg/kg (males: 5/10; and females: 7/10), fibrosis at 200mg/kg (males: 5/10; and females: 4/10), cirrhosis at 400mg/kg (males: 10/10), and bile duct hyperplasia at 200mg/kg (males: 8/10) were observed. Similarly, in 40-54-day oral administration tests using rats (Crj:Cd) (0-150mg/kg, OECD guidelines 421, GLP-compliant), symptoms such as fibrosis around the portal veins at 150mg/kg (90-day conversion: 67-90mg/kg) (males: 6/10; females: 9/10), necrosis (males: 5/10; females: 7/10), and bile duct hyperplasia (males: 6/10; females: 9/10) were observed. In oral administration (0-400mg/kg) tests using mice (B6C3F1), notable pathological changes were not observed. Based on these rat results (SIDS, accessed in July 2008; NTP TR 284, 1985; NTP TR 242, 1983), the substance was classified into Category 2 (liver). 1)

(d) Irritation effects : Skin irritation :

In 24-hour exposure tests using rabbits (New Zealand White) (GLP-compliant), its primary irritation index was 0.5 (SIDS, accessed in July 2008). In 4-hour exposure tests using rabbits (DOT methods), the Primary Dermal Irritation Index was 0 (SIDS, accessed in July 2008). In another rabbit test with its method unspecified, the substance was found to be non irritating to the skin (PATTY (5th, 2001). Based on these results, the substance was classified into "Not classified". 1)

Eye irritation :

Since the substance was found to be not irritating in 3 rabbit tests (SIDS (2004)), the substance was classified into "Not classified". 1)

(e) Corrosive effects : Not dada available 1)

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- (f) Sensitization effects (skin and respiratory)** : In skin sensitization tests using mice (CBA/CaBkl) (local lymph node proliferation tests using mice), stimulation index values were 3.23 at the 5% dose and 10.74 at the 50% dose, and the substance was evaluated to be "sensitizing." (SIDS, accessed July 2008). Based on these results, the substance was classified into Category 1. 1)
- (g) Carcinogenic effects** : In 103-week oral administration (0-300mg/kg) tests using mice (B6C3F1), squamous cell papilloma was detected in the forestomach and it was thought to be attributed to the substance. However, the tests were not conducted with the maximum tolerance dose, and did not provided sufficient data (NTP TR 242, 1983). In 103-week oral administration (0-100mg/kg) tests using rats, mononuclear cell leukemia and bile duct hyperplasia were observed in females administered at 100mg/kg. However, highly variable data made the results ambiguous (NTP TR 284, 1985). As such, information on its carcinogenic effects is insufficient, and thus the substance was classified into "Classification not possible". 1)
- (h) Neurological effects** : Not data available 1)
- (i) Mutagenic effects** : Based on positive results obtained from in vivo mutagenicity tests (micronucleus tests using the mouse bone marrow cells) was not clearly for reproducibility in tests and dosage dependence, and from bone marrow micronucleus test that mouse was decided negatives, being judged that chromosomes damage in vivo does not show(SIDS(2005), Patty(6th,2012)).
- In addition, reverse mutation test by bacteria in vitro is slightly positive, and chromosomal aberration test, micronucleus test and mouse lymphoma assays are positive as the report is made (SIDS (2005), Patty(6th, 2012), DFGOT vol.9(1998)).
- The weakly positive findings in the reverse mutation test is indicated by the DNA reactivity of this substance in germ cell mutagenicity classification evaluation of this substance, additional information is considered necessary.
- As such, information on its mutagenic effects is insufficient, and thus the substance was classified into "Classification not possible". 1)

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- (j) Reproductive effects** : In one-generation reproduction tests using rats (SD), maternal animals, treated with a toxic dose of 150mg/kg/day, failed to complete parturition, and dystocia was frequently observed as a secondary consequence of its general toxicity. No abnormality was observed in terms of numbers of corpora lutea, implantation site, rates of losing pre- and post-implantation embryos, and survival rates of the offspring. Although atrophy of epididymis was observed in male rats, there was no significant difference in epididymides weights relative to bodyweight. (SIDS, accessed in July 2008). Overall, since other information on reproductive toxicity in males was lacking, the substance was classified into "Classification not possible". 1)
- (k) Developmental effects** : NOAEL: 150 mg/kg bw/day
Sexual function and fertility are not affected by oral DAP exposure at doses that induce parental and foetal toxicity.
Classification not considered, because only minor effects recorded in skeletal examinations, and foetal weights were affected at dose levels that also affected maternal body weights. 4)
- (l) Target Organ effects** : See section 11 and repeated dose effects. 1)

12. ECOLOGICAL INFORMATION

- (a) Ecotoxicity** : Acute
Since its 96-hour LC50 = 0.44mg/L for fish (medaka) (Test for the Ecological Effect of Chemical Substances (Ministry of the Environment), 1999), the substance was classified into Category 1. 1)
Long-term
Its classification for acute toxicity is Category 1, it is rapidly degradable (BOD degradability in 28 days = 82.3% (Biodegradation and Bioconcentration of Existing Chemical Substances under the Chemical Substances Control Law, 1996)), and its potential for bioconcentration is estimated to be low (LogPow = 3.23 (PHYSPROF database, 2008)). Based on the information, the substance was classified into "Not classified". 1)
- (b) Persistence and degradability** : (A) Abiotic degradation 4)
(1) Phototransformation in air: Diallyl Phthalate atmospheric photo-oxidation half-life was found to be comprised between 0.04 and 0.4

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days

(2) Phototransformation in water: No data available.

(3) Phototransformation in soil: No data available.

(4) Hydrolysis: The rate constant and estimated half-life for hydrolysis of diallyl phthalate was > 1 year at and below pH 7 at 25°C, while increasing the pH above 7 decreased the estimated half life to 217 hours at pH=9.

(B) Biodegradation 4)

(1.1) Screening tests: In the presence of activated sludge, diallyl phthalate degraded by more than 70% within 28 days, but failed the 10-day window criterion.

(1.2) Simulation tests (water and sediments): Diallyl phthalate is inherently biodegradable.

(2) Biodegradation in soil: No degradation data present for soil. However, considering the relatively low adsorption coefficient of diallyl phthalate, the aquatic degradation can be extrapolated to soil degradation.

(c) Bioaccumulative potential

: Aquatic bioaccumulation: BCF: QSAR values for BCF of 61 and 184 dimensionless

Diallyl phthalate is not considered to be bioaccumulative with estimated BCF values well below 500 based on QSAR calculations for aquatic bioaccumulation.

Terrestrial bioaccumulation: No data present. As the substance is readily metabolised in mammals, bioaccumulation in the food chain is no issue. 4)

(d) Mobility in soil

: Adsorption coefficient: Koc: 429 at 20°C

Absorption of diallyl phthalate is estimated to be relatively low (log Koc= 2.63) indicating a tendency to move through the soil easily. 4)

(e) Other adverse effects

: • Secondary poisoning: Based on the available information, there is no indication of a bioaccumulation potential and, hence, secondary poisoning is not considered relevant.

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- Volatilisation: The relatively low value for the Henry's law constant shows that diallyl phthalate slowly evaporates out of a solution in water. This means that diallyl phthalate is mainly retained in the aquatic compartment.
- Henry's Law constant at 25 deg C = $3.86E-007 \text{ atm-m}^3/\text{mole}$ = $1.58E-005$ unitless (Bond estimation method)
- Henry's Law constant at 25 deg C = $1.17E-007 \text{ atm-m}^3/\text{mole}$ = $4.79E-006$ unit (Group estimation method)
- Henry's Law constant H: $0.039 \text{ Pa m}^3/\text{mol}$ at 25 °C 4)

13. DISPOSAL CONSIDERATIONS

: Waste treatment methods

· Recommendation

In accordance with national and local authority regulations, e.g. The Hazardous Waste (England & Wales) Regulations 2005. EU Hazardous Waste Regulations.

· Uncleaned packaging:

· Recommendation:

Contaminated packaging: Treat empty containers in the same way as the product or if possible wash out thoroughly and recycle.

Comply with federal, state and local regulation.

Do not dump this product into sewers, on the ground or into any body of water.

14. TRANSPORT INFORMATION

- (a) UN number : UN3082
- (b) UN proper shipping name : Environmentally Hazardous Substance, liquid, n.o.s.
(DIALLYL PHTHALATE)
- (c) Transport hazard class(es) : 9
- (d) Packing group : III
- (e) Environmental hazards : Yes

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(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code)

: Yes

(g) Special precautions

: Not restricted.

15. REGULATORY INFORMATION

OSHA Status : This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

TSCA Status : Listed as the name '1,2-Benzenedicarboxylic acid, 1,2-di-2-propen-1-yl ester '. (Active)

CERCLA Reportable Quantity (40 CFR 117,302) : Not applicable.

SARA Title III

Section 302 (40 CFR 355) : Not applicable.

Section 313 (40 CFR 372) : Not listed.

Please refer to any other federal, state and local regulations.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

NFPA 704M Rating

Health	1
Flammability	1
Reactivity	1
Other	

0=Insignificant 1=Slight 2=Moderate 3=high 4=Extreme

HMIS Rating

Health	1
Flammability	1
Physical Hazard	1

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe

*=Chronic Health Hazard

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Revision history : US-423100-00 was issued on Sep. 26th, 2007.
US-423100-13 was amended on Jan. 19th, 2015.
US-423100-14 was amended on Mar. 20th, 2015
US-423100-15 was amended on May 1st, 2015
US-423100-16 was amended on June 18th, 2015
US-423100-17 was amended on October 1st, 2015
US-423100-18 was amended on July 24th, 2018
US-423100-19 was amended on June 7th, 2021
US-423100-20 was amended on February 26th, 2024

Further information : Not available.

Reference(s) : 1) NITE: GHS information in Chemical management field
2) List of Classification Results, National Institute of Technology and Evaluation.
3) NITE Chemical Risk Information Platform (2008)
4) OECD SIDS Initial Assessment Report (2004)

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