

Paraformaldehyde 91-93%

Version	Revision Date:	SDS Number:	Date of last issue: -
1.0	2019/12/19	000000033679	Date of first issue: 2019/12/19

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Paraformaldehyde 91-93%

Product code : 000000000050000767

Recommended use of the chemical and restrictions on use

Recommended use : Chemical intermediate

Manufacturer or supplier's details

Company : Celanese Korea Co.,Ltd.

Address : 4F, B-Dong, Samhwan Hi-Pex, 230, Pangyoeyeok-Ro, Bundang-Gu Seongnam-Si, Gyeonggi-Do, Korea
Seoul 09 13493

Emergency telephone number : +1-703-741-5970, 003-0813-2549

2. HAZARDS IDENTIFICATION**GHS Classification**


Acute toxicity (Oral)	: Category 4
Acute toxicity (Inhalation)	: Category 4
Skin corrosion	: Category 1C
Serious eye damage	: Category 1
Skin sensitisation	: Category 1
Carcinogenicity	: Category 1B
Germ cell mutagenicity	: Category 2
Respiratory sensitisation	: Category 1
Specific target organ toxicity - single exposure	: Category 3 (Respiratory system)
Acute aquatic toxicity	: Category 3
	:

Celanese Paraformaldehyde 91-93% have been tested in accordance with U.N. Test N1 and determined not to be a flammable solid.

GHS label elements

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Hazard pictograms	:	
Signal word	:	Danger
Hazard statements	:	<p>H302 Harmful if swallowed. H332 Harmful if inhaled. H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H350 May cause cancer. H341 Suspected of causing genetic defects. H335 May cause respiratory irritation. H402 Harmful to aquatic life. May form combustible dust concentrations in air.</p>
Precautionary statements	:	<p>Prevention:</p> <p>P201 Obtain special instructions before use. P202 Do not handle until all safety precautions have been read and understood. P260 Do not breathe dust or mist. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P284 In case of inadequate ventilation wear respiratory protection. P270 Do not eat, drink or smoke when using this product. P264 Wash skin thoroughly after handling. P272 Contaminated work clothing should not be allowed out of the workplace. P273 Avoid release to the environment.</p> <p>Response:</p> <p>P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/ physician. P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention. P363 Wash contaminated clothing before reuse. P308 + P313 IF exposed or concerned: Get medical advice/ attention. P342 + P311 If experiencing respiratory symptoms: Call a</p>

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POISON CENTER/doctor.

Storage:

P405 Store locked up.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Disposal:

P501 Dispose of contents and container according to wastes control act.

Other hazards which do not result in classification

None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS**Components**

Chemical name	Common Name	CAS-No.	Concentration (% w/w)
Paraformaldehyde	Paraformaldehyde	30525-89-4	$\geq 91 - \leq 93$
formaldehyde	formaldehyde	50-00-0	≤ 0.1
Paraformaldehyde	Paraformaldehyde	30525-89-4	$\geq 91 - < 93$

4. FIRST AID MEASURES

- General advice : Do not leave the victim unattended.
- In case of eye contact : Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- In case of skin contact : If on skin, rinse well with water.
If symptoms persist, call a physician.
- If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : None known.
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5. FIREFIGHTING MEASURES**Suitable and unsuitable extinguishing media**

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- Suitable extinguishing media : Water
Foam
Dry chemical
Carbon dioxide (CO₂)
- Specific hazards during firefighting : Do not use a solid water stream as it may scatter and spread fire.
Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
- Hazardous combustion products : Carbon oxides
Formaldehyde
- Specific extinguishing methods : Standard procedure for chemical fires.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Avoid contact with the skin and the eyes.
Avoid dust formation.
Avoid breathing dust.
Ensure adequate ventilation.
Mark the contaminated area with signs and prevent access to unauthorized personnel.
- Environmental precautions : Do not flush into surface water or sanitary sewer system.
Do not let product enter drains.
- Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
Sweep up and shovel.
Do not create a powder cloud by using a brush or compressed air.
Non-sparking tools should be used.
Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Provide appropriate exhaust ventilation at places where dust is formed. During processing, dust may form explosive mixture in air. Take measures to prevent the build up of electrostatic charge. Do not empty bag over drums with ignitable gas mixtures. Use explosion-proof equipment.
- Advice on safe handling : For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
Minimize dust generation and accumulation.

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Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Ensure all equipment is electrically grounded before beginning transfer operations.

Paraformaldehyde decomposes to formaldehyde which can build up in a shipping container depending on time and temperature during transit. The level of formaldehyde exposure may be instantaneously high when the shipping container is opened. Provide adequate ventilation.

Conditions for safe storage : Keep container closed when not in use.
Keep in a dry, cool and well-ventilated place.
Store locked up.
Electrical installations / working materials must comply with the technological safety standards.

Materials to avoid : Acids
Bases
Amines
Oxidizing agents
Reducing agents

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values. Formaldehyde is slowly emitted from Paraformaldehyde. The release rate and air concentration are dependent on storage conditions including temperature and ventilation. This exposure limit information on formaldehyde is provided for your reference.

Engineering measures : Use with local exhaust ventilation.
Use explosion-proof equipment.

Personal protective equipment

Eye protection : Safety goggles

Hand protection

Material : butyl-rubber
Break through time : 480 min
Glove thickness : 0.3 mm
Manufacturer : Class 6

Skin and body protection : Protective suit

Hygiene measures : General industrial hygiene practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance	:	solid prills
Colour	:	white
Odour	:	pungent
Odour Threshold	:	1 ppm
pH	:	4 - 5
Melting point/range	:	120 - 170 °C
Flash point	:	Not applicable

Upper/Lower explosion limit

Bulk density	:	890 kg/m ³
Solubility(ies)	:	
Water solubility	:	hydrolyses
Dust deflagration index (Kst)	:	< 200 m.b./s

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions	:	Stable under recommended storage conditions. Stable under recommended storage conditions. Stable under recommended storage conditions.
Conditions to avoid	:	Keep away from fire, sparks and heated surfaces. Take measures to prevent the build up of electrostatic charge.
Incompatible materials	:	Acids Bases Amines Oxidizing agents Reducing agents
Hazardous decomposition products	:	Formaldehyde

11. TOXICOLOGICAL INFORMATION**Health hazard information****Acute toxicity****Components:****Paraformaldehyde:**

Acute oral toxicity	:	LD50 (Rat): 680 mg/kg
Acute inhalation toxicity	:	LC50 (Rat): 1.07 mg/l Exposure time: 4 h
Acute dermal toxicity	:	LD50 (Rabbit): > 2,000 mg/kg

formaldehyde:

Acute oral toxicity	:	LD50 (Rat, male): 460 mg/kg
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Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): 1 mg/l
Exposure time: 0.5 h
Method: OECD Test Guideline 403

Acute dermal toxicity : 270 mg/kg

Skin corrosion/irritation**Components:****Paraformaldehyde:**

Species: Rabbit
Result: Severe skin irritation

formaldehyde:

Species: Rabbit
Method: OECD Test Guideline 404
Result: Corrosive

Serious eye damage/eye irritation**Components:****Paraformaldehyde:**

Species: Rabbit
Result: Severe eye irritation

formaldehyde:

Species: Rabbit
Result: Corrosive
Method: OECD Test Guideline 405

Respiratory or skin sensitisation**Components:****formaldehyde:**

Species: Mouse
Method: OECD Test Guideline 429
Result: May cause sensitisation by skin contact.

Carcinogenicity**Components:****formaldehyde:**

According to Ministry of Employment and Labor Public Notice: Category 1A

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Germ cell mutagenicity**Components:****Paraformaldehyde:**

- Genotoxicity in vitro
- : Test Type: Chromosome aberration test in vitro
Species: Chinese hamster cells
Metabolic activation: without metabolic activation
Method: OECD Test Guideline 473
Result: negative
 - : Test Type: sister chromatid exchange assay
Species: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 479
Result: positive
 - : Test Type: gene mutation test
Species: mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: positive

formaldehyde:

- Genotoxicity in vivo
- : Species: Rat
Method: Mutagenicity (micronucleus test)
Result: negative

Reproductive toxicity**Components:****formaldehyde:**

- Effects on foetal development
- : Species: Mouse
Application Route: Oral
Result: no adverse developmental effects

12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****Paraformaldehyde:**

- Toxicity to fish
- : LC50 (Oncorhynchus mykiss (rainbow trout)): 60 mg/l
Exposure time: 96 h

formaldehyde:

- Toxicity to fish
- : LC50 (Danio rerio (zebra fish)): 6.7 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203

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Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia pulex (Water flea)): 5,800 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202

Toxicity to algae : (Desmodesmus subspicatus (green algae)): Method: OECD Test Guideline 201

EC50 (Scenedesmus quadricauda (Green algae)): 4.89 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Persistence and degradability**Components:****formaldehyde:**

Biodegradability : Inoculum: Fresh water
Result: Readily biodegradable.
Method: OECD Test Guideline 301C

Bioaccumulative potential**Components:****formaldehyde:**

Bioaccumulation : Bioconcentration factor (BCF): 0.4
Remarks: Does not significantly accumulate in organisms.

Mobility in soil

No data available

Other adverse effects**Product:**

Additional ecological information : No data available

Components:**formaldehyde:**

Results of PBT and vPvB assessment : The substance does not meet the criteria for PBT / vPvB according to REACH, Annex XIII

13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : Dispose of as hazardous waste in compliance with local and national regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.

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Disposal precautions

Dispose of contents and container according to wastes control act.

14. TRANSPORT INFORMATION**International Regulations****IATA-DGR**

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

UN number	:	Not applicable
Proper shipping name	:	Not applicable
Class	:	Not applicable
Subsidiary risk	:	Not applicable
Packing group	:	Not applicable
Labels	:	Not applicable
EmS Code	:	Not applicable
Marine pollutant	:	Not applicable

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

Not applicable for product as supplied.

National Regulations

Refer to section 15 for specific national regulation.

Special precautions for user

Remarks	:	Celanese Paraformaldehyde 91-93% have been tested in accordance with U.N. Test N1 and determined not to be a flammable solid.
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15. REGULATORY INFORMATION**National regulatory information****Regulation under the Occupational Safety and Health Act****Harmful Substances Prohibited from Manufacturing**

Not applicable

Harmful Substances Required Permission for Manufacture

Not applicable

Harmful Agents to be kept below Occupational Exposure Limits

Not applicable

Harmful Agents Required to be kept below Permission Levels

Not applicable

Hazardous substances requiring management

Not applicable

Controlled Substances Subject to Environment Monitoring

Not applicable

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Controlled Substances Subject to Health Examination

Not applicable

Act on the Registration and Evaluation, etc. of Chemical Substances, Chemicals Control Act**Toxic Chemicals**

Not applicable

Restricted Chemicals

Not applicable

Prohibited Chemicals

Not applicable

Toxic Release Inventory

Not applicable

Accident Precaution Chemicals

Not applicable

Dangerous Substances Safety Management Act

Not Applicable to Dangerous Materials

Wastes Control Act

Industrial waste

Follow article 13 of the act to dispose the product waste

16. OTHER INFORMATION**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; CPR - Controlled Products Regulations; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals;

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SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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