

Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

1. Product and Company Identification

Product name: Solid hexahydrophthalic anhydride

Synonyms: 1,3-Isobenzofurandione, hexahydro-
1,2-Cyclohexanedicarboxylic anhydride

CAS #: 85-42-7

Product code: -

Product use: Industrial use as an intermediate in chemical synthesis or process.
Industrial use as a hardener for epoxy resins.
Industrial use as a monomer in the manufacture of resins.

Manufacturer/Supplier:

Supplier(Manufacturer): Polynt S.p.A.
Address: Via Enrico Fermi 51
24020 Scanzorosciate (BG)
ITALY

Contact person(E-mail): msds@polynt.com
Telephone: +39 035 652 111
Fax: -

Emergency telephone Number: +39 035 652 276

2. Hazard(s) identification

GHS classification:

Physical hazards: Not classified

Health hazards: Serious eye damage/eye irritation Category 1
Skin sensitization Category 1
Respiratory sensitization Category 1

Environmental hazards: Not classified

GHS label elements:

Hazard Pictograms:



Signal word: Danger



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

Hazard statement: Causes serious eye damage.
May cause an allergic skin reaction.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statement:

Prevention: Avoid breathing dust/fume/gas/mist/vapors/spray.
Wear protective gloves/eye protection/face protection.
Contaminated work clothing must not be allowed out of the workplace.
[In case of inadequate ventilation] wear respiratory protection.

Response: If on skin: Wash with plenty of soap and water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center /doctor.
If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
If skin irritation or rash occurs: Get medical advice/attention.
If experiencing respiratory symptoms: Call a poison center/ doctor.
Wash contaminated clothing before reuse.

Storage: Not applicable.

Disposal: Dispose of contents/container to waste in accordance with local, regional, national and international regulations.

3. Composition / Information on Ingredients

Components	CAS#	Percent	GHS Classification
cyclohexane-1,2-dicarboxylic anhydride	85-42-7	> 99%	H318 Eye Dam. 1 H334 Resp. Sens. 1 H317 Skin Sens. 1

4. First Aid Measures

First aid procedures:

Eye contact: In the case of contact with eyes, rinse immediately with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center /doctor.

Skin contact: After contact with skin, take off contaminated clothing and wash it before reuse. Wash immediately with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

Inhalation:	Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a poison center /doctor.
Ingestion:	Call a physician immediately. Clean mouth with water. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.
Notes to physician:	Treat symptoms.

5. Fire Fighting Measure

Flammable properties:	Not flammable.
Extinguishing media:	
Suitable extinguishing media:	Foam, powder, water spray.
Unsuitable extinguishing media:	Do not use water jets as they can disperse and spread fire.
Firefighting equipment/instructions:	In the event of fire, wear self-contained breathing apparatus. Water mist may be used to cool closed containers. Use personal protective equipment to protect skin/eyes.
Hazardous combustion products:	In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

6. Accidental Release Measures

Personal precautions:	Move any people not authorised to contain the emergency out of the area. Avoid coming in contact with the substance or handling containers without adequate protection. Use the personal protective equipment described in section 8. Use a respirator in the event of emissions/spillage of large quantities. Eliminate all sources of ignition. Remove all incompatible materials as outlined in section 10 of SDS.
Environmental precautions:	Contain the spillage as far as possible. Prevent spilled materials getting into the drainage system, wells, surface water or groundwater. In the case of leaks into a water course, drains, or if the product has contaminated the ground or vegetation, contact the local authorities.
Methods for cleaning up:	Do not use equipment that can generate sources of ignition when cleaning. If possible, vacuum up the spilled material and/or absorb parts that can't be vacuumed up with inert materials (sand, earth, absorbent materials...) and place in suitable containers (separate liquids and solids) for disposal in accordance with section 13. After collection, ventilate and clean the affected area with water before granting access. Do not flush the water used for cleaning into watercourses or down drains.



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

7. Handling and Storage

Handling: Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin and eyes. Take precautionary measures against static discharges. Avoid breathing vapors. For precautions see section 2.2.

Storage: Eliminate all sources of combustion. Keep container hermetically closed in a dry and well ventilated environment. Do not store near heat sources or expose to direct sunlight, to preserve the quality of the product. Keep away from incompatible materials (see point 10.5). Keep away from food, feed and beverages.

8. Exposure Controls / Personal Protection

Control parameters:

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA:

Source	Ingredient	TWA	STEL	Peak	Notes
US ACGIH Threshold Limit Values (TLV)	cyclohexane-1,2-dicarboxylic anhydride	Not Available	Not Available	0.005 mg/m ³	TLV® Basis: Sens

EMERGENCY LIMITS:

Ingredient	TEEL-1	TEEL-2	TEEL-3
Solid hexahydrophthalic anhydride	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
cyclohexane-1,2-dicarboxylic anhydride	Not Available	Not Available

Exposure controls:

Appropriate engineering controls: Use in a well-ventilated area.

Individual protection measures, such as personal protective equipment:

Eye / face protection: Goggles or protective visor.

Skin protection: The material the gloves are made of must be impermeable and stable when in contact with the substance. No specific information available on the suitability of the material and thickness of the gloves. Consult the glove manufacturer for specific information on the suitability of the gloves. Replace the gloves in the case of internal contamination, when punctured, or if external contamination cannot be removed. The actual duration of protection depends on the conditions of use. Wear protective clothing resistant to chemical substances.



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

Respiratory protection:	Mask with P3 dust filter if solid or type A filter for vapours and organic gases with a boiling point > 65°C if molten. (EN 149).
General hygiene Considerations:	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.

9. Physical & Chemical Properties

Appearance:

Physical state:	Solid
Form:	Compact
Color:	White

Odor:

Characteristics

Odor threshold:

Not available

pH:

Not available

Vapor pressure:

77 Pa(20 °C)

Melting point/Freezing point:

31.9 °C

initial boiling point and boiling range:

290.6 °C

Flash point:

152 °C

Evaporation rate:

Not available

Flammability (solid, gas):

Not flammable

Explosion limits:

Not available

Vapor density:

Not available

Solubility (water):

Soluble(4.2 g/L, 20 °C)

Partition coefficient:

log Pow= 1.59(40 °C)

Auto-ignition temperature:

Not available

Decomposition temperature:

Not available

Specific gravity:

Not available

Relative density:

1.191 (40 °C)

Density:

Not available

Flammability limits in air, upper, %by volume:

Not available

Flammability limits in air, lower, % by volume:

Not available

VOC (Volatile Organic Compounds):

Not available

Percent volatile:

Not available

Explosive properties:

Not explosive

Oxidising properties:

Not oxidizing



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

Molecular Formula:	C ₈ H ₁₀ O ₃
Molecular Weight:	154.16
Other data:	
Viscosity:	43 mPa.s (40 °C)
Dissociation constant:	pKa1 = 4.14 pKa2 = 6.52(20 °C)

10. Chemical Stability & Reactivity Information

Reactivity:	Stable under normal conditions.
Chemical stability:	Material is stable under normal conditions.
Conditions to avoid:	Incompatible materials. Avoid the build-up of electrostatic charges. Avoid exposure to heat sources.
Incompatible materials:	Oxidizing agents, strong acids and bases, alkali metals.
Hazardous decomposition products:	Toxic fumes of carbon dioxide / carbon monoxide.
Possibility of hazardous reactions:	No decomposition when used as directed.

11. Toxicological Information

Toxicokinetics, metabolism and distribution:

Non-human toxicological data: Not available

Information on toxicological effects:

Acute toxicity:

LD50(Oral, Rat):	4040 mg/kg bw
LD50(Dermal, Rabbit):	> 2000 mg/kg bw
LC50 (4h) (Inhalation, Rat):	> 1.1 mg/L air (aerosol) (highest achievable concentration)

Skin corrosion/Irritation: Not classified

Serious eye damage/irritation: Causes serious eye damage.

Respiratory or skin sensitization:

Respiratory sensitization: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization: May cause an allergic skin reaction.

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

STOT- single exposure: Not classified
STOT-repeated exposure: Not classified
Aspiration hazard: Not classified

12. Ecological Information

Toxicity:

Acute toxicity		Time	Species	Method	Evaluation	Remarks
LC50	> 1000 mg/L	96h	Fish	OECD 203	N/A	N/A
EC50	> 100 mg/L	48h	Daphnia	OECD 202	N/A	N/A
EC50	> 90.5 mg/L	72h	Algae	OECD 201	N/A	N/A

Persistence and degradability: Abiotic degradation:
Hydrolysis: Half-life (DT50): 5 min at 25°C Rate constant;
Phototransformation in air: Half-life(DT50): 56.5 h (Estimate);

Biotic degradation: Readily biodegradable.

Bioaccumulative potential: BCF = 5.201 L/kg.
Partition coefficient: log Pow= 1.59 (40°C) (as anhydride form).
Partition coefficient: log Pow= - 0.31 (25°C) (as acid form).

Mobility in soil: logKoc: ca. 2.3 at 20°C; Koc 190 at 20°C.

Results of PBT&vPvB assessment: Based on available information, the substance is not a PBT/vPvB.

Other adverse effects: No known significant effects or critical hazards.

13. Disposal Considerations

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

Contaminated packaging: Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Basic shipping requirements:

UN number: Not regulated
Proper shipping name: Not regulated
Hazard class: Not regulated



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

Packing group: Not regulated

Environmental hazards: No

IATA/ICAO

UN number: Not regulated

UN proper shipping name: Not regulated

Transport hazard class(es): Not regulated

Packing group: Not regulated

Environmental hazards: No

IMDG

UN number: Not regulated

UN proper shipping name: Not regulated

Transport hazard class(es): Not regulated

Packing group: Not regulated

Environmental hazards: No

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture:

<u>cyclohexane-1,2-dicarboxylic anhydride (85-42-7):</u> is found on the following regulatory lists	"US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory" List.
--	---

16. Other Information

HMIS® ratings: Health: 3
Flammability: 1
Physical hazard: 0

NFPA ratings: Health: 3
Flammability: 1
Instability: 0

Acronyms:

ACGIH: American Conference of Governmental Industrial Hygienist.
B: Bioaccumulable.
BCF: Bioconcentration Factor.
DOT: U.S. Department of Transportation
EC50: Effective Concentration 50 (that produces an effect (other than death) for 50% of organisms test).
EPA: Environmental Protection Agency.



Safety Data Sheet

According to Hazard Communication Standard (29 CFR 1910.1200)

Solid hexahydrophthalic anhydride

Issue date: 07/14/2015

Version 1.0

Revision date: 07/14/2015

GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
IATA:	International Air Transport Association.
IBC:	International code for the construction and equipment of ships carrying dangerous Bulk Chemicals.
ICAO:	International Civil Air-transport Organisation.
IDLH:	Immediately Dangerous to Life and Health
IMDG:	International Maritime Dangerous Goods code.
Koc:	Organic carbon/water partition coefficient (adsorption coefficient).
Kow/Pow:	n-octanol/water partition coefficient.
LC50:	Lethal Concentration for 50% of animal test.
LD50:	Lethal Dose for 50% test animal.
P:	Persistent.
PBT:	Persistent, Bioaccumulable and Toxic.
SDS:	Safety Data Sheet.
STOT:	Specific target organ toxicity
TEELs;	Temporary Emergency Exposure Limits
TLV:	Threshold Limit Value.
TLV-C:	Threshold Limit Value - Ceiling.
TLV-STEL:	Threshold Limit Value - Short Term Exposure Limit.
TLV-TWA:	Threshold Limit Value - Time Weighted Average.
vPvB:	very Persistent and very Bioaccumulable.
Disclaimer:	The information in the sheet was written based on the best knowledge and experience currently available.
Issue date:	07-14-2015