

Section 1. Product and Company Identification

Product Name Methylhexahydrophthalic Anhydride
CAS Number 19438-60-9

Parchem - fine & specialty chemicals

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CHEMTEL

Toll Free US & Canada: 1 (800) 255-3924

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Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Hazard classes and Hazard statement Code(s)

Serious eye damage/eye irritation (Eye Dam. 1): H318 Causes serious eye damage.

Respiratory/skin sensitization (Resp. Sens. 1): H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Respiratory/skin sensitization (Skin Sens. 1): H317 May cause an allergic skin reaction.

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard statement

H317: May cause an allergic skin reaction.

H318: Causes serious eye damage.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Precautionary statements

P272: Contaminated work clothing should not be allowed out of the workplace.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P501: Dispose of contents/container to waste in accordance with national/international regulation.

P261: Avoid breathing vapors.

P333+P313: If skin irritation or rash occurs: Get medical advice/attention.



- P284:** (In case of inadequate ventilation) wear respiratory protection. (see MSDS).
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P280: Wear protective gloves/eye protection/face protection. (see MSDS).
P302+P352: IF ON SKIN: Wash with plenty of soap and water.
P362+P364: Take off contaminated clothing and wash it before reuse.
P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Other hazards: No other known.

Section 3. Composition / Information on Ingredients

Common Name Methylhexahydrophthalic Anhydride
Synonym(s) hexahydro-4-methylphthalic anhydride
Formula $C_9H_{12}O_3$
CAS Number 19438-60-9

COMPONENT	CAS NUMBER	CONCENTRATION
Methylhexahydrophthalic Anhydride	19438-60-9	> 99%

Section 4. First Aid Measures

Inhalation: Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. If symptoms persist, call a physician.
Skin: After contact with skin, wash immediately with plenty of soap and water. Consult a physician.
Eye: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Call a physician immediately.
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.
Most important symptoms and effects, both acute and delayed: There is no data available for this product.

Section 5. Firefighting Measures

Extinguishing media

Appropriate firefighting equipment: Foam, carbon dioxide (CO₂), powder, water spray.

Inappropriate firefighting equipment: Do not use water jets as they can disperse and spread fire.

Special hazards arising from the substance or mixture: In combustion emits toxic fumes of carbon dioxide/carbon monoxide.

Advice for firefighters: 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.



Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Move any people not authorized 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.

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 and material for containment and 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.

Section 7. Handling and Storage

Precautions for safe handling

Recommendations for safe use: Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin and eyes. Avoid breathing vapors.

Advice on general occupational hygiene: Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace.

Conditions for safe storage, including any incompatibilities: 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 food, feed and beverages.

Section 8. Exposure Controls / Personal Protection

Control parameters

DERIVED NO EFFECT LEVEL (DNEL)/DERIVED MINIMUM EFFECT LEVEL(DMEL)

Workers

Long term systemic effects

Inhalation: DNEL 79.3 mg/m³ Assessment factor 5

Dermal: DNEL 90 mg/kg bw/day Assessment factor 5

General population

Long term systemic effects

Inhalation: DNEL 19.6 mg/m³ Assessment factor 10

Dermal: DNEL 45 mg/kg bw/day Assessment factor 10

Oral: DNEL 45 mg/kg bw/day Assessment factor 10

PREDICTED NO EFFECT CONCENTRATION(PNEC)

Environment

Water

PNEC water (freshwater): 0.1 mg/l Assessment factor 1000

PNEC water (marine water): 0.01 mg/l Assessment factor 10000

PNEC water (intermittent releases): 1 mg/l Assessment factor 100

Sediment

PNEC sediment (freshwater): 1.64 mg/kg sediment dw

PNEC sediment (marine water): 0.164 mg/kg sediment dw

Soil

PNEC soil: 0.2685 mg/kg soil dw

STP

PNEC STP: 2.19 mg/l Assessment factor 100

Occupational Exposure limit values: Data not available

Exposure controls

Eye/face protection: Goggles or protective visor.

Skin protection/of the Hand: 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.

Skin protection/of the body: Wear protective clothing resistant to chemical substances.

Respiratory protection: Mask with A type filter for vapors and organic gases with a boiling point > 65°C. (EN 149)

Section 9. Physical and Chemical Properties

Appearance: Liquid

Color: Colorless

Odor: Characteristics

Odor threshold: NOT AVAILABLE

pH: NOT APPLICABLE (pKa1=4.2 pKa2=6.6 @20°C)

Freezing point: -61.5°C

Initial boiling point: 295.5°C
Flash point: 159.8°C CC
Evaporation rate: NOT AVAILABLE
Flammability (solid, gas): NOT APPLICABLE
Upper flammability limits: NOT AVAILABLE
Lower flammability limits: NOT AVAILABLE
Upper explosive limits: NOT AVAILABLE
Lower explosive limits: NOT AVAILABLE
Vapor pressure: 0.33 Pa @ 25°C
Vapor density: NOT AVAILABLE
Relative density: 1.151 @ 20°C
Water solubility: 8.4 g/l @ 20°C (as acid form)
Partition coefficient n-octanol/water: 2.09 @ 40°C
Auto-ignition temperature: 430°C @ 998.3 hPa
Decomposition temperature: NOT AVAILABLE
Viscosity: 101.4 mPa.s @ 20°C
Other information: Not any.

Section 10. Stability and Reactivity

Reactivity: Stable under normal conditions.
Chemical stability: Stable under normal conditions.
Possibility of hazardous reactions: None known in normal conditions.
Conditions to avoid: Avoid exposure to heat sources.
Incompatible materials: Strong acids, strong bases, oxidizing agents.
Hazardous decomposition products: Unknown

Section 11. Toxicological Information

Acute toxicity

Oral

Method

EU Method B.1 tris: (Acute Oral Toxicity - Acute Toxic Class Method)

OECD Guideline 423: (Acute Oral toxicity - Acute Toxic Class Method) rat (Sprague-Dawley) female; **oral:** gavage

Results

LD50: > 2000 mg/kg bw (female) based on: test mat.

Dermal:

Method: Read-across from supporting substance (structural analogue or surrogate)

OECD Guideline 402: (Acute Dermal Toxicity) (1981)

EU Method B.3: (Acute Toxicity (Dermal))(84/449/EEC) rat (Sprague-Dawley); male/female; semiocclusivo

Results

LD50: > 2000 mg/kg bw (male/female)

Skin corrosion/irritation

Method: FHSA - 16CFR1500.41; rabbit (Albino) Coverage: occlusive(shaved)

Results: moderately irritating

Serious eye damage/eye irritation

Results: Irritating

Respiratory or skin sensitization

Respiratory Sensitization

Results: Sensitizing Category 1

Skin Sensitization

Results: Sensitizing Category 1

Germ cell mutagenicity

In Vitro

bacterial reverse mutation assay (e.g. Ames test) (gene mutation)

Method

OECD Guideline 471: (Bacterial Reverse Mutation Assay)

EU Method B.13/14: (Mutagenicity - Reverse Mutation Test Using Bacteria)

S. typhimurium TA 1535, TA 1537, TA 98 and TA 100: (met. act.: with and without)

E. coli WP2 uvr A: (met. act.: with and without)

Results: negative

mammalian cell gene mutation assay (gene mutation) mouse lymphoma L5178Y cells

Method

EU Method B.17: (Mutagenicity - In Vitro Mammalian Cell Gene Mutation Test)

OECD Guideline 476: (In vitro Mammalian Cell Gene Mutation Test) mammalian cell gene mutation assay (gene mutation)

mouse lymphoma: L5178Y cells (met. act.: with and without)

Results: negative

mammalian chromosome aberration test (chromosome aberration) lymphocytes: human

Method

EU Method B.10: (Mutagenicity - In Vitro Mammalian Chromosome Aberration Test)

OECD Guideline 473: (In vitro Mammalian Chromosome Aberration Test) in vitro mammalian chromosome aberration test (chromosome aberration)

lymphocytes: human (met. act.: with and without)

Results: negative

In Vivo: Data Not available

Carcinogenicity: Not available

Reproductive toxicity

Effects on sexual function and fertility

Method

OECD Guideline 421: (Reproduction / Developmental Toxicity Screening Test) rat (Sprague-Dawley) male/female; screening oral: gavage

Results

NOAEL (P): 450 mg/kg bw/day (actual dose received) (male/female) based on: test mat.

NOAEL (f1): 450 mg/kg bw/day (actual dose received) (male/female) based on: test mat.

Conclusions: not classified

Specific target organ toxicity (STOT) - Single exposure: Not available

Specific target organ toxicity (STOT) - Repeated exposure

Oral

Method

OECD Guideline 407: (Repeated Dose 28-Day Oral Toxicity in Rodents)

EU Method B.7: (Repeated Dose (28 Days) Toxicity (Oral)) rat (Sprague-Dawley) male/female, subacute (oral: gavage)

Results

NOAEL: 450 mg/kg bw/day (nominal) (male/female) based on: test mat.

(Macroscopic/microscopic pathology of the stomach)

NOEL: 50 mg/kg bw/day (nominal) (male/female) based on: test mat. (Macroscopic/microscopic pathology of the stomach)

Conclusions: not classified

Aspiration hazard: Not available

Section 12. Ecological Information

Toxicity to aquatic environment

Short-term toxicity to the aquatic environment

Fish

Method

EU Method C.1: (Acute Toxicity for Fish)

OECD Guideline 203: (Fish, Acute Toxicity Test)

Oncorhynchus mykiss freshwater static

Results

LC50 (24 h): > 100 mg/L test mat. (nominal)

LC50 (48 h): > 100 mg/L test mat. (nominal)

LC50 (72 h): > 100 mg/L test mat. (nominal)

LC50 (96 h): > 100 mg/L test mat. (nominal)

Aquatic invertebrates

Method

EU Method C.2: (Acute Toxicity for Daphnia)

OECD Guideline 202: (Daphnia sp. Acute Immobilisation Test)

Daphnia magna freshwater static

Results

EC50 (24 h): > 100 mg/L test mat. (nominal) based on: mobility

EC50 (48 h): > 100 mg/L test mat. (nominal) based on: mobility

Algae or other aquatic plants

Method

EU Method C.3: (Algal Inhibition test)

OECD Guideline 201: (Alga, Growth Inhibition Test)

Pseudokirchnerella subcapitata (algae) freshwater static

Results

EC50 (72 h): 135 test mat. (nominal) based on: growth rate

EC50 (72 h): 81.3 test mat.(nominal) based on: biomass

NOEC (72 h): 32 mg/L test mat. (nominal) based on: growth rate

NOEC (72 h): 32 test mat. (nominal) based on: biomass

LOEC (72 h): 100 test mat. (nominal) based on: growth rate

LOEC (72 h): 100 test mat. (nominal) based on: biomass

EC10 (72 h): 77.5 test mat. (nominal) based on: growth rate

EC10 (72 h): 42 test mat. (nominal) based on: biomass

EC20 (72 h): 95.7 test mat. (nominal) based on: growth rate

EC20 (72 h): 57.3 test mat. (nominal) based on: biomass

Aquatic microorganisms

Method

EU Method C.11: (Biodegradation: Activated Sludge Respiration Inhibition Test)

OECD Guideline 209: (Activated Sludge, Respiration Inhibition Test)

activated sludge, domestic freshwater static

Results

EC50 (3 h): 218.8 mg/L test mat. (nominal) based on: respiration rate

Long-term toxicity to aquatic environmental: Data not available

Toxicity to the Terrestrial environment: Data not available

Persistence and degradability

Degradability

Abiotic degradation

Hydrolysis

Method

EU Method C.7: (Degradation: Abiotic Degradation: Hydrolysis as a Function of pH)

OECD Guideline 111: (Hydrolysis as a Function of pH)

Results

Half-life (DT50)

t1/2 (pH 4): 1.43 min at 20 °C; Rate constant

t1/2 (pH 4): 2.04 min at 30 °C; Rate constant:

t1/2 (pH 4): 0.692 min at 50 °C; Rate constant:

t1/2 (pH 7): 1.9 min at 20 °C; Rate constant:

t1/2 (pH 7): 1.26 min at 30 °C; Rate constant:

t1/2 (pH 7): 0.327 min at 50 °C; Rate constant:

t1/2 (pH 9): 1.27 min at 20 °C; Rate constant:

t1/2 (pH 9): 1.18 min at 30 °C; Rate constant:

t1/2 (pH 9): 0.233 min at 50 °C; Rate constant:

Value used for CSA: 1.9 min at 20 °C = 3.6 min at 12 °C

Photo transformation in air

Method: EPIWIN (v 4.0), AOPWIN Program (v 1.92) PHOTOCHEMICAL REACTION WITH OH RADICALS

Results

Half-life (DT50): 45.268 h (24-hour day; 0.5E6 OH/cm³)

Value used for CSA: Half-life in air: 45.268 h

Biotic degradation

Aquatic environment

Method

EU Method C.4-D: (Determination of the 'Ready' Biodegradability – Manometric Respirometry Test).

OECD Guideline 301 F: (Ready Biodegradability: Manometric Respirometry Test)

Test type: ready biodegradability activated sludge, non-adapted

Results

under test conditions no biodegradation observed % Degradation of test substance:

ca. 2 after 28 d (O₂ consumption)

Value used for CSA: Not ready biodegradable

Conclusions: The substance is hydrolyzed rapidly in a few minutes; therefore exposure of the

aquatic and terrestrial compartments for this substance are unlikely.

Bioaccumulative potential

Bioaccumulation

Aquatic environment

Method

US EPA EPIWIN: (v 4.0)

Results

BCF: 11.12 L/kg

LogBCF: 1.05

Value used for CSA: BCF: 11.12 L/kg ww (L/kg ww or dimensionless)

Terrestrial environment: Data not available

Conclusions: These data indicate that the substance is not bioaccumulative (B).

Mobility in soil

Adsorption/desorption

Method: Calculation method US EPA EPIWIN (v 4.0); Study type: adsorption/desorption.

Results

Adsorption coefficient: Koc: 41.94; LogKoc: 1.62

Value used for CSA: Koc = 41.94; logKoc = 1.62 at 20 °C

Volatilization

Method: EPIWIN (v 4.0), HENRYWIN Program (v 3.20)

Results

Henry's Law constant: 2.9 Pa m³/mol at 25 °C

Distribution among environmental compartments

Method

Calculation program: EPIWIN (v.4.0). Calculation according to Mackay, Level III

Media: air - biota - sediment(s) - soil - water

Results

Percent distribution in media

Air (%): 4.79

Water (%): 39.1

Soil (%): 56

Sediment (%): 0.008

Results of PBT and vPvB assessment: Regarding all available data on biotic and abiotic degradation, bioaccumulation and toxicity it can be stated that the substance does not fulfil the PBT criteria (not PBT) and not the vPvB criteria (not vPvB).

Other adverse effects: No other known.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

UN number: NOT APPLICABLE
UN proper shipping name: NOT APPLICABLE
Transport hazard class(es): NOT APPLICABLE
Packing group: NOT APPLICABLE
Environmental hazards: NOT APPLICABLE
Special precautions for user: NOT APPLICABLE

ADR/RID

Tunnel restriction code: NOT APPLICABLE
Category - limited quantities per transport unit: NOT APPLICABLE
LQ code - limited quantities per pack unit: NOT APPLICABLE
E code excepted quantities: NOT APPLICABLE

IMDG

LQ code - limited quantities per pack unit: NOT APPLICABLE
E code excepted quantities: NOT APPLICABLE
Ems: NOT APPLICABLE

ICAO/IATA

Packing Instructions / max. net quantities per package per plane - combi and cargo: NOT APPLICABLE
Packing Instructions / max. net quantities per package in limited quantity regime: NOT APPLICABLE
EQ code for excepted quantities regime: NOT APPLICABLE

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: NOT APPLICABLE

Section 15. Regulatory Information

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

European Regulation 1907/2006/EC (Reach);
European Regulation 1272/2008/EC (CLP);
European Regulation 453/2010/EU;
DIRECTIVE 24/1998/EC;



DIRECTIVE 37/2004/EC;
DIRECTIVE 92/1999/EC;
DIRECTIVE 18/2012/EU;

Methylhexahydrophthalic anhydride (CAS 19438-60-9) is listed in the Candidate List (list of SVHC substances) published by ECHA on 19 December 2012. It meets the criteria of Article 57 (f) of REACH because it is a substance with respiratory sensitizing properties, for which there is scientific evidence of probable serious effects to human health which give rise to an equivalent level of concern to those of other substances listed in points (a) to (e) of Article 57 of REACH. Companies may have legal obligations resulting from the inclusion of substances in the Candidate List. These obligations refer not only to the listed substances on their own or in mixtures but also to their presence in articles.

Chemical safety assessment: CSA available.

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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