

Adipoyl Chloride-Hexane

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Adipoyl Chloride-Hexane

Synonyms/Generic Names: None

SDS Number:

Product Use: For Educational Use Only

Manufacturer: Columbus Chemical Industries, Inc.
N4335 Temkin Rd.
Columbus, WI. 53925

For More Information Contact: Ward's Science
5100 West Henrietta Rd.
PO Box 92912-9012
Rochester, NY 14692
(800) 962-2660 (Monday-Friday 7:30-7:00 Eastern Time)

In Case of Emergency Call: CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

2. HAZARDS IDENTIFICATION

OSHA Hazards: Flammable liquid, Target organ effect, Irritant, Toxic by ingestion, Teratogen

Target Organs: Peripheral nervous system, Kidney, Testes

Signal Words: Danger

Pictograms:



GHS Classification:

Flammable liquids	Category 2
Acute toxicity, Oral	Category 4
Skin irritation	Category 2
Eye irritation	Category 2A
Reproductive toxicity	Category 2
Specific target organ toxicity – single exposure	Category 2
Specific target organ toxicity – repeated exposure, Inhalation	Category 2
Aspiration hazard	Category 1
Acute aquatic toxicity	Category 2
Chronic aquatic toxicity	Category 2

GHS Label Elements, including precautionary statements:**Hazard Statements:**

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335+H336	May cause respiratory irritation, and drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H371	May cause damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary Statements:

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/fumes/dust/mist/vapors/spray.
P273	Avoid release to the environment.
P281	Use personal protective equipment as required.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do so. Continue rinsing.
P331	Do NOT induce vomiting.

Potential Health Effects

Eyes	Causes eye irritation.
Inhalation	May be harmful if inhaled. Causes respiratory tract irritation. Vapors may cause drowsiness and dizziness.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Ingestion	Toxic if swallowed. Aspiration hazard if swallowed – can enter lungs and cause damage.

NFPA Ratings

Health	2
Flammability	3
Reactivity	0
Specific hazard	Not Available

HMIS Ratings

Health	2
Fire	3
Reactivity	0
Personal	G

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Hexanes	98	Not Available	Not Available	Mixture	Mixture
Adipoyl Chloride	2	111-50-2	203-876-4	C ₆ H ₈ Cl ₂ O ₂	183.03 g/mol

4. FIRST-AID MEASURES

Eyes	In case of eye contact, immediately rinse with plenty of water for at least 15 minutes and seek medical attention immediately.
Inhalation	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention immediately.

Ingestion	Do Not Induce Vomiting! Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention immediately.
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5. FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media	Flammable Liquid. For small (incipient) fires, use media such as alcohol foam, dry chemical, or carbon dioxide. For large fires, apply water from as far away as possible. Use very large quantities of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.
Special protective equipment and precautions for firefighters	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
Specific hazards arising from the chemical	Emits toxic fumes (carbon oxides, hydrogen chloride gas) under fire conditions. Vapor can cause flash fire. Vapors are heavier than air and may travel long distances along the ground to an ignition source and flash back.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	See section 8 for recommendations on the use of personal protective equipment.
Environmental precautions	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.
Methods and materials for containment and cleaning up	Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation and grounding. Wash thoroughly after using. Keep container closed when not in use. Keep away from sources of ignition. No smoking. Take measure to prevent the buildup of electrostatic charge.

Conditions for safe storage, including any incompatibilities

Store in tightly closed, containers in a cool, dry, well ventilated area. Keep away from heat, sparks and flame. Maintain adequate ventilation. Ground all equipment containing this material. Keep away from incompatible materials (see section 10 for incompatibilities).

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure controls: Ventilation and appropriate grounding of containers.

Component	Exposure Limits	Basis	Entity
Hexanes:			
n-Hexane	50 ppm 176 mg/m ³	TLV	ACGIH
	500 ppm	PEL	OSHA

	1800 mg/m ³		
	50 ppm 180 mg/m ³	REL	NIOSH
2-Methylpentane	510 ppm 1800 mg/m ³	CEIL (15 minutes)	NIOSH
	100 ppm 350 mg/m ³	REL	NIOSH
	500 ppm 1760 mg/m ³	TLV	ACGIH
	1000 ppm 3500 mg/m ³	STEL	ACGIH
3-Methylpentane	510 ppm 1800 mg/m ³	CEIL (15 minutes)	NIOSH
	100 ppm 350 mg/m ³⁵	REL	NIOSH
	500 ppm 1760 mg/m ³	TLV	ACGIH
	1000 ppm 3500 mg/m ³	STEL	ACGIH

TWA: Time Weighted Average over 8 hours of work.

TLV: Threshold Limit Value over 8 hours of work.

REL: Recommended Exposure Limit

PEL: Permissible Exposure Limit

STEL: Short Term Exposure Limit during x minutes.

IDLH: Immediately Dangerous to Life or Health

WEEL: Workplace Environmental Exposure Levels

CEIL: Ceiling

Personal Protection

Eyes	Face shield and safety glasses with face shield.
Inhalation	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
Skin	Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. Handle with gloves. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Other	Not Available

Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Clear to brown liquid.
Odor	Light hydrocarbons odor.
Odor threshold	Not Available
pH	Not Available
Melting point/freezing point	-95°C (-135°F) (hexane)
Initial boiling point and boiling range	69°C (156°F) (hexane)
Flash point	-22°C (-7°F) (hexane)
Evaporation rate	>1 (hexane)
Flammability (solid, gas)	Flammable Liquid.
Upper/lower flammability or explosive limit	1.1-7.5% (hexane)
Vapor pressure	@ 20°C (68°F): 120 mmHg (hexane)

Vapor density	3.0 (hexane)
Relative density	0.67-0.73 g/cm ³ (hexane)
Solubility (ies)	Negligible
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	225°C (437°F) (hexane)
Decomposition temperature	Not Available

10. STABILITY AND REACTIVITY

Chemical Stability	Stable
Possibility of Hazardous Reactions	Will not occur.
Conditions to Avoid	Keep away from heat, flame and sparks. Extremes of temperature and direct sunlight.
Incompatible Materials	Oxidizers.
Hazardous Decomposition Products	Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Hexanes

Skin	Not Available
Eyes	Eyes - rabbit - Mild eye irritation
Respiratory	LC50 Inhalation - rat - 4 h - 48000 ppm
Ingestion	LD50 Oral - rat - 25,000 mg/kg

Carcinogenicity

IARC	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Signs & Symptoms of Exposure

Eyes	Redness, blurred vision, tearing.
Inhalation	Lung irritation, chest pain, coughing, shortness of breath, dizziness, drowsiness.
Skin	Defatting, dermatitis.
Ingestion	Gastrointestinal discomfort, central nervous system depression, giddiness, slowed reaction time, slurred speech, headache, nausea.

Chronic Toxicity	No carcinogenic effects in humans. -Carcinogenicity - rat - Inhalation Tumorigenic: Carcinogenic by RTECS criteria. Tumorigenic Effects: Testicular tumors
Teratogenicity	Not Available
Mutagenicity	Not Available
Embryotoxicity	Not Available
Specific Target Organ Toxicity	May cause drowsiness or dizziness.
Reproductive Toxicity	Overexposure may cause reproductive disorder(s) based on tests with laboratory animals. Suspected human reproductive toxicant Suspected of damaging fertility.
Respiratory/Skin Sensitization	Not Available
Aspiration Hazard	May be fatal if swallowed and enters airways.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Hexanes

Aquatic Vertebrate	LC50 - Pimephales promelas (fathead minnow) - 2.5 mg/l - 96.0 h
Aquatic Invertebrate	EC50 - Daphnia magna (Water flea) - 3,878.00 mg/l - 48 h
Terrestrial	EC50 - Chlorella vulgaris (Fresh water algae) - 12,840.00 mg/l - 3 h EC50 - SKELETOMA - 0.30 mg/l - 8 h

Persistence and Degradability	Not Available
Bioaccumulative Potential	Not Available
Mobility in Soil	Not Available
PBT and vPvB Assessment	Not Available
Other Adverse Effects	Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Waste Residues	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product or residues.
Product Containers	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

14. TRANSPORTATION INFORMATION

US DOT	UN1208, Hexanes solution, 3, pg II
TDG	UN1208, HEXANES SOLUTION, 3, PG II
IMDG	UN1208, HEXANES SOLUTION, 3, PG II
Marine Pollutant	No
IATA/ICAO	UN1208, Hexanes solution, 3, pg II

15. REGULATORY INFORMATION

TSCA Inventory Status	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65	Not Listed
SARA 302	Not Listed
SARA 304	Not Listed
SARA 311	Fire Hazard, Acute Health Hazard, Chronic Health Hazard
SARA 312	Fire Hazard, Acute Health Hazard, Chronic Health Hazard
SARA 313	Listed: Hexanes
WHMIS Canada	Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). Class D-2B: Material causing other toxic effects (TOXIC).

16. OTHER INFORMATION

Revision	Date
Revision 1	01/16/2013
Revision 2	06/19/2013

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