

SECTION 1: CHEMICAL PRODUCT and COMPANY IDENTIFICATION

Catalog No.
L09481

Product Name: **1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane, 98%**
Synonyms: p,p'-DDT, p,p'-Dichloro-1,1-diphenyl-2,2,2-trichloroethane

Manufacturer/Supplier Name: Alfa Aesar - A Johnson Matthey Company
Address: 30 Bond St.
Ward Hill, MA 01835

Business Phone: 978-521-6300

Business Fax: 978-521-6350

For information
in North America, call: 978-521-6300

CHEMTREC Numbers:

For emergencies in the US, call CHEMTREC: 800-424-9300

For emergencies outside US, call INTERNATIONAL: (703)527-3887

For Nonemergency, call: (800)262-8200

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SECTION 2 : COMPOSITION, INFORMATION ON INGREDIENTS

Catalog No. L09481

Chemical Name 1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane
CAS# 50-29-3
% Weight (Typical) 98

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SECTION 3 : HAZARDS IDENTIFICATION

Catalog No. L09481

Emergency Overview: Toxic. Carcinogen. Reproductive effects. Mutation data. Environmental Hazard.

1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane:

Route of Exposure: Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye Contact: No data

Skin Contact: May cause skin irritation. May cause dermatitis in susceptible individuals.

Skin Absorption: Toxic by skin contact.

Inhalation: Expected to be harmful by inhalation.

Ingestion: Toxic by ingestion.

Target Organs: Skin. Respiratory system. G.I. Tract. Heart. Cardiovascular. Reproductive System.

Signs/Symptoms: Exhibits acute, delayed and chronic toxicity affecting central nervous system, heart, liver and kidneys. Symptoms of exposure may include local anaesthesia, headache, nausea and vomiting, cardiac arrhythmias, anxiety, incoordination, tremor, convulsions. A cumulative poison: may cause delayed and progressive liver and central nervous system degeneration.

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SECTION 4 : FIRST AID MEASURES**Catalog No. L09481**

Eye Contact:	Immediately flush eyes with plenty of water for at least 20 minutes. Assure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention if irritation persists, or symptoms of overexposure become apparent.
Skin Contact:	Immediately wash skin with plenty of water for at least 20 minutes, while removing contaminated clothing and shoes. Get medical attention especially, if irritation develops, persists, or symptoms of overexposure become apparent.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Keep warm. Get immediate medical attention.
Ingestion:	If swallowed, call a physician or poison control center immediately. Never give anything by mouth to an unconscious person. Do not induce vomiting unless instructed by medical personnel. Get medical attention.

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SECTION 5 : FIRE FIGHTING MEASURES**Catalog No. L09481**

Flash Point:	162°C (323.6°F)
Extinguishing Media:	Use dry powder or carbon dioxide when fighting a fire involving this material.
Unsuitable Media:	Water extinguishers are not recommended.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

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SECTION 6 : ACCIDENTAL RELEASE MEASURES**Catalog No. L09481**

Personal Precautions:	Use proper personal protective equipment as listed in section 8.
Spill Cleanup Measures:	Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container. Avoid generating dusty conditions. Refer to section 13 for disposal requirements.
Environmental Precautions:	Do not allow material to enter drains or streams.

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SECTION 7 : HANDLING and STORAGE**Catalog No. L09481**

Handling:	This product should be handled only by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals, who should take into account the fire, health and chemical hazard data. It should always be handled in an efficient fume hood or equivalent system. The user should consider that the toxicological and physiological properties of many compounds are not yet well determined and that new hazardous products may arise from reactions between chemicals. Care should be taken to prevent any chemical from coming into contact with the skin or eyes and from contaminating personal clothing.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible substances. Keep container tightly closed when not in use.
Hygiene Practices:	Wash thoroughly after handling. Avoid contact with eyes and skin. Avoid inhaling dust.

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SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION**Catalog No. L09481**

Guideline Type: ACGIH TLV-TWA

Guideline Information: 1 mg/m³

Guideline Type: OSHA PEL-TWA

Guideline Information: 1 mg/m³

Guideline Type: NIOSH REL-TWA

Guideline Information: 0.5 mg/m³

Engineering Controls: Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.

Skin Protection Description: Wear suitable protective clothing to prevent contact with skin.

Hand Protection Description: Wear appropriate protective gloves. Consult glove manufacturers for glove permeability data.

Eye/Face Protection: Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.

Respiratory Protection: A NIOSH approved air-purifying respirator with an appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited to airborne concentrations that are typically within 10 times the exposure limit. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirators use.

Other Protective: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

Ingredient Guidelines

Ingredient: 1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane

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SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES**Catalog No. L09481**

Physical State/Appearance: Solid

Color: White

Flash Point: 162°C (323.6°F)

Boiling Point: 185-187°C (365-368.6°F) /0.05mm

Melting Point: 107-109°C (224.6-228.2°F)

n-Octanol/water partition coefficient: 6.36

Solubility in Water: 3.25 ug/L @ 20°C (68°F)

Density: No data

Molecular Formula: C₁₄H₉Cl₅

Molecular Weight: 354.49

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SECTION 10 : STABILITY and REACTIVITY**Catalog No. L09481**

Conditions to Avoid:	High temperatures, flames and sparks.
Incompatibilities with Other Materials:	Strong oxidizing agents. Strong reducing agents. Strong bases. Alkali metals or other reactive metals.
Possible Decomposition Product:	Carbon monoxide. Phosgene. Hydrogen chloride.

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SECTION 11 : TOXICOLOGICAL INFORMATION**Catalog No. L09481**

1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane :

RTECS Number:	KJ3325000
Eye Effect:	No data reported in the cited references as of the revision date.
Skin Effects:	Skin - rabbit LD50: 300 mg/kg [Behavioral - tremor Behavioral - muscle weakness Behavioral - ataxia] (RTECS). Skin - rat LD50: 1931 mg/kg (RTECS). Skin - guinea pig LD50: 1 gm/kg [Behavioral - tremor Behavioral - muscle weakness Behavioral - ataxia] (RTECS)
Ingestion Effects:	Oral - rat LD50: 87 mg/kg (RTECS); Oral - mouse LD50: 135 mg/kg (RTECS); Oral - rabbit LD50: 250 mg/kg (RTECS); Oral - guinea pig LD50: 150 mg/kg (RTECS); Oral - Human LDLo: 500 mg/kg [Behavioral - convulsions or effect on seizure threshold Cardiac - arrhythmias (including changes in conduction) Lungs, Thorax, or Respiration - other changes] (RTECS); Oral - Human TDLo: 16 mg/kg [Behavioral - convulsions or effect on seizure threshold] (RTECS); Oral - man TDLo: 6 mg/kg [Behavioral - headache Gastrointestinal - nausea or vomiting Skin and Appendages - sweating] (RTECS); Oral - Human TDLo: 5 mg/kg [Behavioral - general anesthetic Behavioral - analgesia] (RTECS)
Inhalation Effects:	No data reported in the cited references as of the revision date.
Chronic Ingestion Effects:	Oral - rat TDLo: 91 mg/kg/26W-I Kidney, Ureter, Bladder - other changes in urine composition Endocrine - other changes Endocrine - changes in adrenal weight; Oral -rat TDLo: 6510 mg/kg/14D-C Behavioral - tremor Related to Chronic Data - death; Oral -rat TDLo: 462 mg/kg/22W-C Endocrine - changes in spleen weight Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol) Immunological Including Allergic - decrease in cellular immune response; Oral -rat TDLo: 4300 mg/kg/14W-I Liver - changes in liver weight Endocrine - changes in adrenal weight Nutritional and Gross Metabolic - weight loss or decreased weight gain; Oral -rat TDLo: 91250 ug/kg/2Y-C Liver - changes in liver weight; Oral -rat TDLo: 336 mg/kg/8W-C Immunological Including Allergic - decrease in cellular immune response Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - peptidases; Oral -rat TDLo: 754 mg/kg/52D-I Liver - changes in liver weight Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol) Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - transaminases (RTECS); Oral -mouse TDLo: 504 mg/kg/12W-C Liver - changes in liver weight Endocrine - changes in spleen weight Immunological Including Allergic - decrease in humoral immune response; Oral -mouse TDLo: 53088 ug/kg/24W-C Immunological Including Allergic - decrease in humoral immune response (RTECS); Oral -rabbit TDLo: 1 gm/kg/20D-I Behavioral - tremor Liver - hepatitis (hepatocellular necrosis), zonal Related to Chronic Data - death (RTECS); Oral -guinea pig TDLo: 1867 mg/kg/42D-I Brain and Coverings - other degenerative changes Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - true cholinesterase; Oral -pigeon TDLo: 1517 mg/kg/42D-I Liver - changes in liver weight Endocrine - other changes Endocrine - changes in thyroid weight (RTECS)

Carcinogenicity:	NIOSH Carcinogen. Reasonably anticipated to be a human carcinogen by NTP (NTP-R category). IARC-2B Carcinogen - Possibly Carcinogenic to Humans. ACGIH TLV-A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans. Carcinogenic and equivocal tumorigenic agent by RTECS criteria.
Mutagenicity:	Human mutation data reported. (RTECS).
Teratogenicity:	Teratogenic effects. (RTECS); Experimental animal teratogen. (Supplier data)
Reproductive Toxicity:	Reproductive effects. (RTECS)
Other Toxicity:	Intratracheal - rat TDLo: 150 mg/kg/3D-I Lungs, Thorax, or Respiration - other changes Liver - other changes Liver - changes in liver weight (RTECS); Subcutaneous - rabbit TDLo: 20 mg/kg/20D-I Lungs, Thorax, or Respiration - changes in lung weight Liver - changes in liver weight Endocrine - changes in spleen weight (RTECS)
Other Toxicological Information:	Intraperitoneal - rat LD50: 9100 ug/kg; Intraperitoneal - mouse LD50: 32 mg/kg; Intravenous - rabbit LDLo: 50 mg/kg Behavioral - tremor Behavioral - convulsions or effect on seizure threshold Behavioral - excitement; Subcutaneous - rat LD50: 1500 mg/kg Behavioral - tremor Behavioral - muscle weakness Behavioral - ataxia; Subcutaneous - rabbit LD50: 250 mg/kg Behavioral - tremor Behavioral - muscle weakness Behavioral - ataxia; Subcutaneous - guinea pig LD50: 900 mg/kg Behavioral - tremor Behavioral - muscle weakness Behavioral - ataxia

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SECTION 12 : ECOLOGICAL INFORMATION

Catalog No. L09481

Ecotoxicity:	LC50 Daphnia spp. 1 ug/L/96H. LC50 Lepomis macrochirus 8 ug/L/96H. LC50 Salmo gairdneri 7 ug/L/96H. Very toxic to all aquatic organisms.
Bioaccumulation:	Observed to increasingly bioaccumulate and/or bioconcentrate along the foodchain and with age in aquatic organisms. BCF Cyprinus carpio 5100-25900.
Biodegradation:	Observed to be not biodegradable in soil and water, estimated half-life 400 years.
Environmental Stability:	Observed to extremely persistent in the environment.

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SECTION 13 : DISPOSAL CONSIDERATIONS

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Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines, by a licensed disposal company.
EPA Waste Number:	U061 for 1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane CAS Number: 50-29-3

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SECTION 14 : TRANSPORT INFORMATION

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DOT Shipping Name:	Organochlorine pesticides, solid toxic
DOT Hazard Class:	6.1
DOT Identification Number:	UN2761
DOT Packing Group:	II
DOT Subpart E Labeling Requirement:	6.1

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1,1-Bis(4-chlorophenyl)-2,2,2-trichloroethane :

TSCA 8(b): Inventory Status: Listed on the TSCA inventory.

Risk Phrases:

R25 Toxic if swallowed.
R40 Possible risks of irreversible effects.
R48/25 Toxic: danger of serious damage to health by prolonged exposure if swallowed.
R50/53 Very toxic to aquatic organisms, may cause long term adverse effects in the environment.

Safety Phrase:

S22 Do not breathe dust.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell, seek medical advice immediately
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/Safety data sheets.

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SECTION 16 : ADDITIONAL INFORMATION

MSDS Preparation Date: January 1, 2002, Version 1

MSDS Revision Date: April 14, 2003.

MSDS Author: Actio Corporation.

Disclaimer:

This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. We shall ensure, so far as is reasonably practicable, that any revision of this Data Sheet is sent to all customers to whom we have directly supplied this substance, but must point out that it is the responsibility of any intermediate supplier to ensure that such revision is passed to the ultimate user. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment. Should further information be required, this can be obtained through the sales office whose address is at the top of this data sheet. We welcome any additional information about our products that customers have obtained by personal experience.

References:

1. American Chemical Society, STN Easy Online Database
2. Brethericks Reactive Chemical Hazards Database. Version 2.
3. Gassarett and Doulls Toxicology, The Basic Science of Poisons.
4. Hawleys Condensed Chemical Dictionary, Thirteenth Edition
5. IARC monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Man, WHO International Research on Cancer.
6. Industrial Hygiene and Toxicology, by F.A. Patty.
7. National Library of Medicine, Department of Health and Human Services, Hazardous Substances Data Bank (HSDB).
8. National Toxicology Program (NTP) Eighth Report on Carcinogens, 1997.
9. NIOSH Registry of Toxic Effects of Chemical Substances (RTECS) and Pocket Guide to Chemical Hazards.
10. OSHA Hazard Communication Standard, 1910.1200 and Z Tables.
11. Sax Dangerous Properties of Industrial Materials. Tenth Edition.
12. The Merck Index: An Encyclopedia of Chemicals and Drugs. Merck and Company. Twelfth Edition 1998.
13. Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment and Biological Exposure Indices. TLV Booklet, 2001.