

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 12/28/2009

Reviewed on 12/24/2009

**1 Identification of substance:****Product details:****Product name:** 2,4-Dichlorophenoxyacetic acid**Stock number:**

A12467

L02914

**Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Emergency Phone: (978) 521-6300

CHEMTREC: (800) 424-9300

Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department**Emergency information:**

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

**2 Composition/Data on components:****Chemical characterization:****Description: (CAS#)**

2,4-Dichlorophenoxyacetic acid (CAS# 94-75-7)

**Identification number(s):****EINECS Number:** 202-361-1**Index number:** 607-039-00-8**3 Hazards identification****Hazard description:**

Xn Harmful

**Information pertaining to particular dangers for man and environment**

R 22 Harmful if swallowed.

R 37 Irritating to respiratory system.

R 41 Risk of serious damage to eyes.

R 43 May cause sensitization by skin contact.

R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Classification system****HMIS ratings (scale 0-4)****(Hazardous Materials Identification System)**

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

**GHS label elements****Danger**

3.3/1 - Causes serious eye damage.

**Warning**

3.1/4 - Harmful if swallowed.

3.4/1 - May cause an allergic skin reaction.

3.8/3 - May cause respiratory irritation.

4.1/3 - Harmful to aquatic life with long lasting effects.

**Prevention:**

Do not get in eyes, on skin, or on clothing.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

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**Response:**

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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

**4 First aid measures****After inhalation**

Supply fresh air and to be sure call for a doctor.

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing** Seek immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**

Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

**Information about protection against explosions and fires:** Keep ignition sources away.**Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:** Store away from oxidizing agents.**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with limit values that require monitoring at the workplace:**

2,4-Dichlorophenoxyacetic acid

mg/m<sup>3</sup>

ACGIH TLV

10; Not classifiable as a human carcinogen

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Austria MAK	10
Belgium TWA	10
Denmark TWA	5
Finland TWA	10; 20-STEL (skin)
France VME	10
Germany MAK	1
Hungary TWA	1; 2-STEL (skin)
Korea TLV	10; Not classifiable as a human carcinogen
Netherlands MAC-TGG	10
Norway TWA	5
Poland TWA	7; 20-STEL
Switzerland MAK-W	10; 50-KZG-W
United Kingdom TWA	10; 20-STEL
USA PEL	10

**Components with limit values that require monitoring at the workplace:****Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

**Breathing equipment:** Use suitable respirator when high concentrations are present.**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

Impervious gloves

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Powder
<b>Color:</b>	Off-white
<b>Odor:</b>	Odorless

**Change in condition**

<b>Melting point/Melting range:</b>	136-140°C (277-284°F)
<b>Boiling point/Boiling range:</b>	160°C (320°F)
<b>Sublimation temperature / start:</b>	Not determined

**Flash point:** Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined

**Vapor pressure:** Not determined**Density at 20°C (68°F):** 1.42 g/cm<sup>3</sup>**Solubility in / Miscibility with****Water at 25°C (77°F):** 0.62 g/l**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:** Oxidizing agents**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Hydrogen chloride (HCl)

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**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	347 mg/kg (mouse) 630-774 mg/kg (rat)
	LDLo	80 mg/kg (human) 93 mg/kg (man)
	LD50	>2000 mg/kg (rabbit)
Inhalative	LC50/4H	>1800 mg/m <sup>3</sup> /4H (rat)
Irritation of skin	mild	500 mg/24H (rabbit)
Irritation of eyes	severe	750 µg/24H (rabbit)

**Primary irritant effect:****on the skin:** Irritant to skin and mucous membranes.**on the eye:** Strong irritant with the danger of severe eye injury.**Sensitization:** Sensitization possible through skin contact.**Other information (about experimental toxicology):**

Mutagenic effects have been observed on tests with laboratory animals.

Reproductive effects have been observed on tests with laboratory animals.

**Subacute to chronic toxicity:****Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - coma.

Behavioral - somnolence (general depressed activity).

Behavioral - convulsions or effect on seizure threshold.

Behavioral - muscle weakness.

Behavioral - stiffness.

Behavioral - ataxia.

Behavioral - alteration of classical conditioning.

Behavioral - changes in motor activity (specific assay).

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).

Kidney, Ureter, Bladder - changes in bladder weight.

Blood - changes in cell count (unspecified).

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Musculoskeletal - changes in teeth and supporting structures.

Skin and Appendages - primary irritation (after topical exposure).

Skin and Appendages - dermatitis, other (after systemic exposure).

Lungs, Thorax, or Respiration - respiratory depression

Cardiac - change in rate.

Peripheral Nerve and Sensation - spastic paralysis with or without sensory change.

Gastrointestinal - nausea or vomiting.

Gastrointestinal - gastritis.

Liver - fatty liver degeneration.

Liver - changes in liver weight.

Liver - other changes.

Endocrine - changes in thyroid weight.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - transaminases.

Nutritional and Gross Metabolic - body temperature decrease.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Sense Organs and Special Senses (Eye) - retinal changes.

Related to Chronic Data - death.

Reproductive - Specific Developmental Abnormalities - blood and lymphatic systems.

Reproductive - Specific Developmental Abnormalities - musculoskeletal system.

Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).

Reproductive - Effects on Embryo or Fetus - fetal death.

Reproductive - Specific Developmental Abnormalities - Central Nervous System.

Reproductive - Specific Developmental Abnormalities - urogenital system.

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Reproductive - Effects on Newborn - biochemical and metabolic.

Reproductive - Specific Developmental Abnormalities - craniofacial (including nose and tongue).

Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).

Reproductive - Effects on Embryo or Fetus - extra-embryonic structures (e.g., placenta, umbilical cord)

Reproductive - Specific Developmental Abnormalities - eye/ear.

Reproductive - Fertility - pre-implantation mortality (e.g. reduction in number of implants per female; total number of implants per corpora lutea)

Reproductive - Effects on Newborn - other postnatal measures or effects.

Reproductive - Specific Developmental Abnormalities - immune and reticuloendothelial system

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**Additional toxicological information:**

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

**12 Ecological information:****Ecotoxicological effects:**

**Remark:** Harmful to fish

**General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Do not allow material to be released to the environment without proper governmental permits.

Harmful to aquatic organisms

**13 Disposal considerations****Product:**

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**14 Transport information**

Not a hazardous material for transportation.

**DOT regulations:**

**Hazard class:** None

**Land transport ADR/RID (cross-border)**

**ADR/RID class:** None

**Maritime transport IMDG:**

**IMDG Class:** None

**Marine pollutant:** No

**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 9

None

**Transport/Additional information:** Not dangerous according to the above specifications.

**15 Regulations****Product related hazard informations:****Hazard symbols:**

Xn Harmful

**Risk phrases:**

22 Harmful if swallowed.

37 Irritating to respiratory system.

41 Risk of serious damage to eyes.

43 May cause sensitization by skin contact.

52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Safety phrases:**

24/25 Avoid contact with skin and eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

46 If swallowed, seek medical advice immediately and show this container or label.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

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**Information about limitation of use:**

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.**Contact:** Zachariah Holt**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

USA