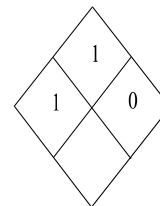


MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



PRODUCT NAME: DACTHAL® FLOWABLE HERBICIDE
GENERAL USE: Herbicide
PRODUCT DESCRIPTION: Gray opaque viscous liquid suspension
EPA Registration Number: 5481-487
MSDS No.: 298_4
Current Revision Date: 10 August, 2009

MANUFACTURER:
AMVAC CHEMICAL CORPORATION
4100 E. Washington Blvd.
Los Angeles, CA 90023-4406
Ph: 323-264-3910
FAX: 323-268-1028

EMERGENCY TELEPHONE NUMBERS:
MANUFACTURER: 323-264-3910
TRANSPORTATION (24 HOURS)
CHEMTREC: 800-424-9300
OTHER (24 HOURS)
AMVAC: 323-264-3910

2. COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	WT%	CAS No.
DACTHAL® (Dimethyl 2,3,5,6-tetrachloro-1,4-benzene-dicarboxylate; Chlorthal-dimethyl; DCPA; TCTP; Dimethyl tetrachloroterephthalate)	54.9%	1861-32-1
Other Compounds	45.1%	

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

COMPONENT	HAZARD	OSHA PEL*	ACGIH TLV*
Chlorthal-dimethyl (CAS # 1861-32-1)	Poison (by Intravenous route)		
Hexachlorobenzene(trace) (CAS # 118-74-1)	Carcinogen		0.002 mg/m ³

* Exposure Limits 8 hrs. TWA

DACTHAL is a registered trademark of AMVAC Chemical Corporation

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

CAUTION: Harmful if swallowed. Avoid inhaling mist. This product may cause skin and eye irritation. Do not contaminate feed or foodstuffs.

KEEP OUT OF REACH OF CHILDREN.

Slightly toxic to bees.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Ingestion.

SIGNS OF ACUTE OVEREXPOSURE: May be a mild eye irritant. Ingestion may cause upset stomach.

SIGNS OF CHRONIC OVEREXPOSURE: May show evidence of liver and thyroid gland toxicity.

OTHER POTENTIAL HEALTH EFFECTS: This product contains small amounts of Hexachlorobenzene (HCB), which has been listed as a known carcinogen by IARC, NTP, and the state of California. HCB has also been listed as a reproductive hazard by the state of California. DACTHAL® has been classified by EPA as a possible carcinogen (Group C).

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known.

CARE SHOULD BE EXERCISED IN HANDLING DACTHAL® AND ITS FORMULATIONS.

4. FIRST AID MEASURES

EYES: Immediately flush the eyes with copious amounts of clear, cool running water for a minimum of 15 minutes. Hold the eyelids apart during the flushing to ensure rinsing of the entire surface of the eyes and lids with water. If irritation occurs and persists, contact a physician.

INHALATION: Avoid inhaling the dust. If symptoms of breathing difficulties appear, get the person out of the contaminated area into fresh air.

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously, keep airways clear. Never give anything by mouth to an unconscious person. Contact a physician immediately.

4. FIRST AID MEASURES, cont'd

SKIN: Remove contaminated clothing. Wash thoroughly with soap and clean water. If a rash or any of the symptoms of acute exposure appear, contact a physician immediately.

NOTE TO PHYSICIANS: Treat symptomatically. AMVAC Chemical Corporation is available 24 hours/day to answer questions on this product. The telephone number is 1-323-264-3910.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flash Point: Nonflammable

Autoignition Temperature: Not applicable

Flammable Limits:

Lower flammable limit: Not applicable

Upper flammable limit: Not applicable

Flammability: This is a noncombustible liquid that will burn or decompose when kept directly in the flame (NFPA rating = 1)

EXPLOSIVITY

Mechanical Impact: Not explosive

Static Discharge: Will not occur

HAZARDOUS COMBUSTION PRODUCTS: This product may emit hazardous fumes of hydrogen chloride, carbon oxides, and unidentified organic compounds when it is heated excessively or burned. **WEAR SELF-CONTAINED BREATHING APPARATUS.**

EXTINGUISHING MEDIA: Water spray, dry chemical, foam, or carbon dioxide.

FIRE FIGHTING INSTRUCTIONS: Do not breathe fumes. Wear complete firefighting gear, including protective gloves, eye protection and self-contained breathing apparatus. Wash clothing before reuse.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: Use impervious clothing and safety goggles. Keep bystanders away from the spill. Do not walk in the spill. It may be very slippery. See Section 8 (Exposure Control/Personal Protection) for more information.

SMALL SPILL: Cover with absorbent (clay, sawdust, straw, kitty litter, etc.), to absorb the liquid. Sweep into an open drum. Clean the area with common powdered household detergent and a stiff brush and just enough water to make a slurry. Absorb and sweep into the same open drum. Rinse with water, absorb, and add to the waste drum. Close the drum and dispose of properly.

6. ACCIDENTAL RELEASE MEASURES, cont'd

LARGE SPILL: Dike the spill to prevent contamination of local water sources. Siphon the majority of the liquid into drums for use or disposal, depending on the circumstances. Clean the area as described for a small spill.

7. HANDLING AND STORAGE

HANDLING: Keep this product cool and dry. Keep container closed. Store away from feed, food, and drink. Keep away from children and pets. Wash thoroughly after handling this product.

STORAGE: Store product in its original container in a cool, dry, locked place out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

RESPIRATORY PROTECTION: A properly FIT-TESTED NIOSH/MSHA-approved respirator fitted with organic vapor cartridges and dust filters is required when working with this product if the ventilation is insufficient to keep exposure to dusts at a minimum.

SKIN PROTECTION: Applicators and other handlers must wear long-sleeved shirt and long pants; waterproof gloves; and shoes plus socks. Follow manufacturer's instructions for cleaning/maintaining personal protection equipment (PPE). If no such instructions are available, use detergent and hot water. Keep and wash PPE separately from other laundry. Do not reuse contaminated clothing until it has been laundered properly. Always wash hands, face and arms with soap and water after using pesticides before smoking, eating, drinking or going to the toilet. Shower after work each day.

EYE PROTECTION: Safety glasses with sideshields should be used whenever hazardous chemicals are being handled.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
APPEARANCE:	Gray opaque viscous liquid suspension
ODOR:	Slightly aromatic odor
ODOR THRESHOLD:	Not available
BOILING POINT:	100°C
FREEZING/MELTING POINT:	-5°C

9. **PHYSICAL AND CHEMICAL PROPERTIES, cont'd**

SPECIFIC GRAVITY:	1.32 g/mL
BULK DENSITY:	11 lb/gal @ 20°C
VAPOR PRESSURE:	0.21 mPa (2.5 x 10 ⁻⁶ torr) @ 25°C (gas saturation method)
VAPOR DENSITY:	Heavier than air
PERCENT VOLATILE BY VOLUME:	41% (v/v)
SOLUBILITY IN WATER:	Disperses
SOLUBILITY (Other):	The active ingredient in this product is soluble in aromatic hydrocarbons, chlorinated hydrocarbons, ketones, and esters.
PARTITION COEFFICIENT (O/W):	1.9 x 10 ⁴ @ 25°C (a.i.)
pH (use levels):	6.5 to 8.5
EVAPORATION RATE:	Not determined

10. **STABILITY AND REACTIVITY**

CHEMICAL STABILITY (Conditions to avoid): This product is stable under normal storage and use conditions. It will decompose at elevated temperatures (360-370°C)

INCOMPATIBILITY: Strong acids and bases will decompose the ester functions of DACTHAL.

HAZARDOUS DECOMPOSITION PRODUCTS: This product may emit hazardous fumes of hydrogen chloride, carbon oxides, and unidentified organic compounds when it is heated excessively or burned. WEAR SELF-CONTAINED BREATHING APPARATUS when these conditions are present.

HAZARDOUS POLYMERIZATION: This product will not polymerize.

11. **TOXICOLOGICAL INFORMATION**

GENERAL: Data presented are from testing this product (1) or the technical material (2).

INGESTION:	Oral LD ₅₀ (rat):	> 5000 mg/kg (1)
DERMAL:	Skin LD ₅₀ (rabbit):	> 2000 mg/kg (1)
INHALATION:	Inhalation LC ₅₀ (rat):	> 2.08 mg/L (1)
IRRITATION:	Eye irritation (rabbit):	Slight, reversible irritant (1)
	Skin irritation (rabbit):	Mild irritant (1)
SENSITIZATION:	Skin sensitization (guinea pig):	Technical material is not a sensitizer (2)
TERATOGENICITY:	No evidence of teratogenicity has been observed in laboratory testing. (2)	
MUTAGENICITY:	No evidence of mutagenicity has been observed in animal testing. (2)	

11. TOXICOLOGICAL INFORMATION, cont'd

CARCINOGENICITY: A contaminant in DACTHAL®, HCB, has been found to be carcinogenic in several studies conducted for IARC and NTP. DACTHAL® has been classified by EPA as a Group C, possible carcinogen, based on increased incidence of thyroid tumors in both sexes of the rat and liver tumors in female rats and mice. (3)

REPRODUCTIVE TOXICITY: No effects on reproductive performance, only decreased pup and parental body weights, were seen throughout two successive generations in the rat. (3). A trace impurity, Hexachlorobenzene, has been classified as being a reproductive hazard by the State of California.

TOXICOLOGICALLY SYNERGISTIC PRODUCTS: No data available

12. ECOLOGICAL INFORMATION

GENERAL: This pesticide is mildly toxic to some fish and aquatic organisms. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not apply directly adjacent to potable water supplies. This pesticide is slightly toxic to honeybees.

Groundwater Advisory: Tetrachloroterephthalic acid, a breakdown product of DACTHAL®, is known to leach through soil as a result of agricultural and turf uses and has been found in groundwater which may be used for drinking water. Users of formulated products are advised not to apply DACTHAL® to sand and loamy sand soils where the water table (groundwater) is close to the surface and where these soils are very permeable, i.e., well drained. Your local agricultural agencies can provide further information on the type of soil in your area and the location of groundwater used for drinking water.

13. DISPOSAL CONSIDERATIONS

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed on site (by use according to the label) or at an approved waste disposal facility. Further information can be obtained from the EPA or the equivalent state and local agencies.

CONTAINER DISPOSAL: Triple rinse. Use the rinsate in the process according to the label, or dispose as a hazardous waste. Either offer the container for recycle or puncture and dispose as a hazardous waste. Check with EPA, State, and local authorities for the current regulations applicable to your area.

14. TRANSPORTATION INFORMATION

DOT CLASS:	Not regulated
UN NUMBER:	Not regulated
IMDG CLASS (sea):	Not regulated

14. TRANSPORTATION INFORMATION, cont'd

IATA CLASS (air):	Not regulated
PACKING GROUP:	Not regulated
HAZARD LABEL(s):	Not regulated
ADR CLASS (road):	Not regulated
PROPER SHIPPING NAME(s):	Not regulated
REPORTABLE QUANTITY:	None
SPECIAL INFORMATION:	None

(NOTE: The classification of this product is based on the fact that the mist criteria found in 49CFR§173.132(b)(3) will not be met and therefore the LC₅₀ is not applicable.

PACKAGING

GENERAL DESCRIPTION: 2 x 2.5 gal plastic bottles

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS:

This product is registered under EPA/FIFRA Regulations. It is a violation of Federal Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product is excluded from listing requirements under EPA/TSCA.

SARA TITLE III DATA

Section 311 & 312 Hazard Categories:

Immediate Health Hazard:	Yes
Delayed Health Hazard:	No
Fire Hazard:	No
Reactive Hazard:	No
Sudden Pressure Release Hazard:	No

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals:

Hexachlorobenzene (HCB) (CAS 118-74-1)

CERCLA/EPCRA Reportable Quantities (RQ):

Hexachlorobenzene (HCB) (CAS 118-74-1) - 10 lbs; Product - 10000+ lbs

STATE REGULATIONS:

CALIFORNIA (Proposition 65): This product contains trace amounts of Hexachlorobenzene (HCB), a chemical known to the State of California to cause cancer or birth defects or other reproductive harm.

16. OTHER INFORMATION

MSDS STATUS:

Date This Revision: 10 August, 2009

Date Previous Revision: 10 August, 2005

Person Responsible for Preparation: Gary A. Braden

REASONS FOR REVISION: Annual review. Information was updated in section 14 to clarify this section.

DISCLAIMER: This information is provided for the limited guidance to the user. While AMVAC believes that the information is, as of the date hereof, reliable, it is the user's responsibility to determine the suitability of the information for its purposes. The user is advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional, or variable conditions or circumstances exist (like combinations with other materials), or because of applicable regulations. No express or implied warranty of merchantability or fitness for a particular purpose or otherwise is made hereunder with respect to the information or the product to which the information relates.

ABBREVIATIONS:

a.i.	-	active ingredient
ACGIH	-	American Conference of Governmental Industrial Hygienists
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EPA	-	Environmental Protection Agency
EPCRA	-	Emergency Planning and Community Right-to-Know Act
FIFRA	-	Federal Insecticide, Fungicide, and Rodenticide Act
IARC	-	International Agency for Research on Cancer
IATA	-	International Air Transport Association
IMDG	-	International Maritime Dangerous Goods
NTP	-	National Toxicology Program
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

This is the last page of this MSDS. There should be 8 pages.