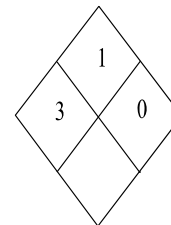


MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION



PRODUCT NAME: AVENGE® 200 C Wild Oat Herbicide
CHEMICAL NAME (Active Ingredient): 1,2-Dimethyl-3,5-diphenyl-1H-pyrazolium methyl sulfate
SYNONYMS (for active ingredient): Difenzoquat methyl sulfate
MOLECULAR FORMULA (Active Ingredient): C₁₈H₂₀N₂O₄S
GENERAL USE: Herbicide
PRODUCT DESCRIPTION: Clear yellow, odorless liquid
EPA Registration Number: This product is not registered in the United States
PEST CONTROL PRODUCTS ACT(Canada): 12853
MSDS No.: 345_2
Current Revision Date: 11 February, 2010

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.
Difenzoquat methyl sulfate	26.36%	43222-48-6
Inert Ingredients	73.74%	
Includes trace amounts of 1,2-Dichloroethane (also known as Ethylene dichloride)	< 0.1%	107-06-2

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)

COMPONENT	HAZARD	OSHA PEL*(skin)	ACGIH TLV*(skin)
Difenzoquat methyl sulfate	Corrosive	None established	None established
1,2-Dichloroethane	Carcinogen, irritation	50 ppm	10 ppm

* Exposure Limits 8 hrs. TWA

AVENGE is a registered trademark of BASF.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

DANGER! Corrosive to eyes. Causes Irreversible Eye Damage. May be fatal if ingested. Harmful if absorbed through the skin. Causes skin irritation.

Keep out of reach of children! Do not contaminate food or feed products. Do not breathe mists.

Toxic to fish, birds and other wildlife. Do not contaminate bodies of water.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF ENTRY: Poisonous if swallowed, inhaled or absorbed through skin. Contact with the eyes may cause irreversible eye damage.

SIGNS OF ACUTE OVEREXPOSURE: Symptoms may include, but are not limited to, skin irritation, blurred vision, and nausea.

SIGNS OF CHRONIC OVEREXPOSURE: There are no known chronic effects associated with this product.

OTHER POTENTIAL HEALTH EFFECTS: Laboratory studies have shown no carcinogenic effects in laboratory animals. IARC lists Dichloroethane (Ethylene dichloride) as Group 2B (possibly carcinogenic to humans) and NTP lists Ethylene dichloride as reasonably anticipated to be a human carcinogen.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Preexisting skin or respiratory disorders may be aggravated by exposure to components of this product. Avoid skin contact.

CARE SHOULD BE TAKEN WHEN HANDLING DIFENZOQUAT METHYL SULFATE AND ITS FORMULATIONS.

4. FIRST AID MEASURES

EXPOSURE TO AVENGE® 200 C WILD OAT HERBICIDE (DIFENZOQUAT METHYL SULFATE) CAN CAUSE PERMANENT EYE DAMAGE. MAKE SURE TREATING PERSONNEL WEAR PROTECTIVE EYEWEAR DURING INITIAL TREATMENT OF THE EXPOSED INDIVIDUAL.

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. Contact a physician immediately. If there will be a delay in getting medical attention, rinse the eyes for at least another 15 minutes.

INHALATION: Remove victim to fresh air if symptoms are observed. If breathing has ceased, clear the victim's airway and start mouth-to-mouth artificial respiration. If breathing is difficult, give oxygen. Contact a physician immediately. Be sure the contact areas are clean to prevent contamination of the rescuer.

INGESTION: Contact a physician or poison control center immediately. Do not induce vomiting. Immediately dilute the swallowed product by giving large quantities of milk, egg white, gelatin solution, or, if none of the others is available, water (at least 1 to 2 large glasses).

SKIN: Wash affected areas thoroughly with soap and water. Remove contaminated clothing. Do not attempt to neutralize with chemical agents. Wash clothing before reuse. If skin irritation or overexposure symptoms develop, contact a physician immediately.

NOTES TO PHYSICIANS: Probable mucosal damage from swallowing product may contraindicate the use of gastric lavage. There is no specific antidote for exposure to this product. There is some evidence from animal studies that physostigmine sulfate, used in conjunction with norepinephrine, by injection, may be beneficial in the treatment of acute intoxication by AVENGE® following accidental ingestion. Treatment of overexposure should be directed at the control of symptoms and the clinical condition.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

Flash Point:	~ 217°F (Setaflash Closed-Cup Method)
Autoignition Temperature:	Not available
Flammable Limits:	
Lower flammable limit:	Not determined
Upper flammable limit:	Not determined
Flammability:	This is a nonflammable liquid that will burn in a direct flame (NFPA rating = 1).

EXPLOSIVITY:

Mechanical Impact:	Not explosive
Static Discharge:	Will not occur

HAZARDOUS COMBUSTION PRODUCTS: Heating or burning may release toxic vapors or fumes. Containers exposed to intense heat from fires should be cooled with water to prevent vapor pressure buildup, which could result in container rupture.

EXTINGUISHING MEDIA: Water fog, "Alcohol" Foam, Dry Chemical, CO₂.

5. FIRE FIGHTING MEASURES, cont'd

FIRE FIGHTING INSTRUCTIONS: Evacuate nonessential personnel to a safe area upwind of the fire. Wear self-contained breathing apparatus. Wear full protective equipment to prevent skin contact. Runoff from fire control may be a pollution hazard. Wash all equipment thoroughly with detergent and water before reuse.

6. ACCIDENTAL RELEASE MEASURES

GENERAL: Evacuate personnel and thoroughly ventilate the area. Use adequate ventilation and appropriate personal protective equipment (PPE, Section 8). Keep bystanders upwind and away from the spill.

SMALL SPILL: Cover the spill with absorbent material. Shovel the mixture into a sealable container for disposal as a hazardous waste. If spilled on the ground, the affected area should be removed and placed into an appropriate container for disposal. Close the drum and dispose of properly, according to hazardous waste disposal procedures for your locality.

LARGE SPILL: Dike the spill to prevent contamination of local water sources. Siphon the liquid into a closed container. Clean up the area as for a small spill.

7. HANDLING AND STORAGE

HANDLING: Avoid exposure to mists and vapors by wearing appropriate personal protective equipment (PPE, section 8) and adequate ventilation. Always wash hands, face, and arms with soap and water before smoking, eating, drinking, or going to the toilet.

STORAGE: Store in the original container in a secure, temperate, dry place. Keep away from heat and open flame. Do not contaminate water, food, or feed. Do not contaminate bodies of water.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Ventilation should be sufficient to keep exposures to vapors below the TLV for the hazardous ingredients of this product (see Section 2). Use of mechanical or local exhaust systems is recommended.

RESPIRATORY PROTECTION: When respiratory protection is required, or concentrations may exceed the TLV or PEL, use a NIOSH/MSHA approved air-purifying respirator equipped with organic vapor cartridges or canisters. It is recommended that the canisters be changed whenever breakthrough occurs or eight (8) hours of use has occurred, whichever comes first. For emergency and other conditions where the exposure limit may be greatly exceeded, use an approved positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION, cont'd

SKIN PROTECTION: Prevent skin contact. Chemical resistant gloves(preferably nitrile), coveralls or long-sleeved shirt and pants, and chemical resistant shoes or boots, are necessary to prevent skin contamination. Remove contaminated clothing as soon as possible. Wash dirty or contaminated clothing separately from other clothes. Wear clean clothes daily. Wash well with soap and water after handling this product. See the label for more specific instructions.

EYE PROTECTION: Safety glasses with sideshields must be worn whenever working with this product. In addition, goggles or a faceshield are required if there is a chance of splashing or mist formation.

OTHER PROTECTION: There should be an eyewash station and a safety shower in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE:	Liquid
APPEARANCE:	Clear yellow liquid
ODOR:	Odorless
BOILING POINT:	> 212°F (100°C)
FREEZING/MELTING POINT:	Not available
SPECIFIC GRAVITY:	1.1046
DENSITY:	9.218 lb/gal
VAPOR PRESSURE:	10 ⁻⁷ mm Hg @ 25°C (a.i.)
VAPOR DENSITY:	Heavier than air
PERCENT VOLATILE BY VOLUME:	Not available
SOLUBILITY (Water):	Miscible
SOLUBILITY (Other):	Not available
PARTITION COEFFICIENT (O/W):	0.238 (K _{ow}) (a.i., @ pH 7 and 25°C)
pH:	7 - 8.5
REACTIVITY WITH WATER:	Not reactive
EVAPORATION RATE:	Not available

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY (Conditions to avoid): Stable at normal temperatures and storage conditions. Slowly decomposes at temperatures above 45° (113°F), with the pH going from acidic to basic.

CONDITIONS TO AVOID: May generate hydrogen, a flammable gas, when in contact with aluminum.

INCOMPATIBILITY: Strongly acidic or strongly alkaline materials. Incompatible with aluminum.

10. STABILITY AND REACTIVITY, cont'd

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include but are not limited to oxides of carbon, nitrogen, and sulfur.

HAZARDOUS POLYMERIZATION: This product will not polymerize.

11. TOXICOLOGICAL INFORMATION

INGESTION: Oral LD₅₀ (rat): 863/912 mg/kg (male/female)
INHALATION: Inhalation LC₅₀ (rat): 0.68 mg/L (4 hr)
DERMAL: Skin LD₅₀ (rabbit): > 2028 mg/kg (combined male/female)
IRRITATION: Eye irritation (rabbit): Corrosive (irreversible damage)
Skin irritation (rabbit): Mildly irritating
SENSITIZATION: Skin sensitization: No information is available
TERATOGENICITY: No teratogenic or fetotoxic effects were found at all AVENGE® Technical (difenzoquat) dose levels tested in rats. In a similar test with rabbits, a decrease in the survival rate was found in the high dose group which was 250 mg/kg/day.
MUTAGENICITY: No mutagenic activity was observed with AVENGE® Technical (difenzoquat) in multiple laboratory tests.
CARCINOGENICITY: No oncogenic effects were observed with AVENGE® Technical (difenzoquat) at all dose levels tested in mice and rats. IARC lists Ethylene dichloride as Group 2B (possibly carcinogenic to humans) and NTP lists ethylene dichloride as reasonably anticipated to be a human carcinogen.
REPRODUCTIVE TOXICITY: No evidence of reproductive toxicity in rats when AVENGE® Technical (difenzoquat) was tested. Only maternal decreased body weight gain and weight decreases in pups at birth and weaning.
TOXICOLOGICAL SYNERGISTIC PRODUCTS: No data are available.

12. ECOLOGICAL INFORMATION

GENERAL: This product is slightly to practically non-toxic to fish and birds. The product is moderately toxic to freshwater invertebrates. It is non-toxic to honeybees. Keep out of surface waters, sewers, and waterways entering or leading to surface waters.

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL: Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal law. If these wastes cannot be disposed by use according to label instructions, contact your nearest State Pesticide or Environmental Control Agency, the Hazardous Waste representative at the nearest EPA regional office or national equivalent to these agencies, for guidance. Open dumping is prohibited.

13. DISPOSAL CONSIDERATIONS, cont'd

CONTAINER DISPOSAL: Do not reuse the empty container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If the container is burned stay out of the smoke. Be sure to check with the appropriate National, State and local authorities to determine the current regulations for your area.

14. TRANSPORTATION INFORMATION

DOT CLASS:	Not regulated
UN NUMBER:	None
IMDG CLASS (SEA):	Not regulated
IATA CLASS (AIR):	Not regulated
MARINE POLLUTANT:	No
PACKING GROUP:	None
HAZARD LABEL(S):	None
PROPER SHIPPING NAME(S):	Not regulated
REPORTABLE QUANTITY: (DOT, 172.101, Appendix A)	No

PACKAGING

GENERAL DESCRIPTION: 2 L and 10 L plastic containers.

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.

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS: This product is not registered under EPA/FIFRA in the United States. It is for export as a pesticide only. Do not 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.

CANADIAN REGULATIONS: This product is registered under the Pest Control Product Act of Canada. It is a violation of Canadian Law to use this product in any manner inconsistent with its labeling. Read and follow all label directions. This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

15. REGULATORY INFORMATION, cont'd

SARA TITLE III DATA

Section 311 & 312 Hazard Categories:

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

Section 302 Extremely Hazardous Substances: None

Section 313 Toxic Chemicals: 1,2-Dichloroethane (CAS# 107-06-2) - < 0.1%

CERCLA Reportable Quantity (RQ): 1,2-Dichloroethane (CAS# 107-06-2) - 100 lbs;
Product - > 100,000 lbs

EPCRA Threshold Planning Quantity (TPQ): None

STATE REGULATIONS:

CALIFORNIA (Proposition 65): This product contains a chemical known to the state of California to be carcinogenic: 1,2-Dichloroethane.

16. OTHER INFORMATION

MSDS Status:

Date This Revision: 11 February, 2010

Date Previous Revision: 22 May, 2006

Person Responsible for Preparation: Gary A. Braden

Reasons for Revision: Annual Review. Registration in Canada has been completed and the registration number has been provided in section 1.

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.

16. OTHER INFORMATION, cont'd

ABBREVIATIONS:

a.i.	-	Active Ingredient
ACGIH	-	American Conference of Governmental Industrial Hygienists
ADR	-	European <u>A</u> greement Concerning the International Carriage of <u>D</u> angerous Goods by <u>R</u> oad
CERCLA	-	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	-	Department of Transportation
EHS	-	Extremely Hazardous Substances
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
OSHA	-	Occupational Safety and Health Agency
SARA	-	Superfund Amendments and Reauthorization Act
TSCA	-	Toxic Substances Control Act

This is the last page of this MSDS. There should be 9 pages.