

Material Safety Data Sheet  
Effective Date: 16-DEC-1997  
Product: BARRAGE HF

#### I. IDENTIFICATION

Chemical Name: 2-ETHYLHEXYL ESTER OF 2,4-D ACETIC ACID  
Chemical Family: CHLORINATED PHENOXY HERBICIDE  
Formula: NOT APPLICABLE, FORMULATED MIXTURE  
Synonyms: NONE  
CAS Number: 25168-26-7  
EPA Number: 5905-529

#### II. PHYSICAL DATA

Boiling Point: >300 DEGREES F.  
Freezing Point: <32 DEGREES F.  
Spec Gravity: 1.090 GMS/CC  
Vapor Pressure: NOT DETERMINED  
Vapor Density: NOT DETERMINED  
Solubility: EMULSIFIABLE  
Volatiles: <0.1%  
Evaporation: NOT DETERMINED  
Melting Point: NOT APPLICABLE  
Appearance: LT. BROWN LIQUID, PETROLEUM DISTILLATE ODOR

#### III. INGREDIENTS

| Material  | CAS Number | Percent | TLV              | Hazard                 |
|---|------------|---------|------------------|------------------------|
| 2-ETHYLHEXYL ESTER OF 2,4-DICHLOROPHENOXYACETIC ACID (EQUIVALENT TO 51.8% 2,4-D ACID, OR 4.7 LBS/GAL) |            | 78.10   | 10<br>MG/M3      | SKIN & EYE<br>IRRITANT |
| INERT INGREDIENTS (INCLUDING PETROLEUM DISTILLATES)   |            | 21.90   | 100 PPM<br>(AIR) | SKIN & EYE<br>IRRITANT |

#### IV. FIRE AND EXPLOSION HAZARD

Flash Point: >200 DEGREES F. (TCC)  
Autoignition Temp: 850 DEGREES F.  
Flammable Limit: NOT DETERMINED  
Extinguishing Media: USE DRY CHEMICALS OR CARBON DIOXIDE. USE OF WATER OR FOAM SHOULD BE DISCOURAGED TO PREVENT SPREADING OF MATERIAL.  
Special Fire Fight Proc: USE WATER TO KEEP FIRE EXPOSED CONTAINERS COOL. SELF-CONTAINED BREATHING APPARATUS SHOULD BE PROVIDED FOR FIREFIGHTERS IN BUILDINGS OR CONFINED AREAS.  
Fire and Expl Hazard: MAY LIBERATE HYDROGEN CHLORIDE (AN ACIDIC GAS) WHEN BURNED.

Material Safety Data Sheet  
Effective Date: 16-DEC-1997  
Product: BARRAGE HF

V. HEALTH HAZARD

Carcinogen Information: DID NOT CAUSE CANCER IN ANIMAL STUDIES.

ACUTE EFFECTS OF OVER EXPOSURE

Swallowing: SINGLE DOSE ORAL TOXICITY IS LOW. ORAL LD50  
(MALE RAT)1492 MG/KG. MAY CAUSE

GASTROINTESTINAL IRRITATION OR ULCERATION.

Skin Absorption: LD50 (RABBIT) 2871 MG/KG. SINGLE PROLONGED  
SKIN EXPOSURE MAY RESULT IN MATERIAL BEING  
ABSORBED IN HARMFUL AMOUNTS.

Inhalation: SINGLE EXPOSURE TO VAPORS IS NOT LIKELY TO BE  
HAZARDOUS.

Skin contact: PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE  
SKIN IRRITATION.

Eye Contact: MAY CAUSE SEVERE IRRITATION WITH CORNEA INJURY,  
WHICH MAY RESULT IN PERMANENT VISION IMPAIRMENT.

Chronic Effects: EXCESSIVE EXPOSURE MAY CAUSE LIVER, KIDNEY,  
GASTROINTESTINAL AND MUSCULAR EFFECTS. SIGNS AND  
SYMPTOMS OF EXCESSIVE EXPOSURE MAY BE NAUSEA,  
VOMITING, ABDOMINAL CRAMPS AND DIARRHEA.

Other Hazard: HIGH DIETARY LEVELS CAUSED TOXIC EFFECTS  
(WEIGHT AND VIABILITY REDUCTION) IN RATS ON A  
REPRODUCTION TEST. RESULT OF MUTAGENICITY TESTS  
IN ANIMALS HAVE BEEN INCONCLUSIVE.

EMERGENCY AND FIRST AID PROCEDURES

Swallowing: DILUTE BY GIVING 1 OR 2 GLASSES OF WATER TO  
DRINK. DO NOT INDUCE VOMITING. CALL A PHYSICIAN  
OR POISON CONTROL CENTER IMMEDIATELY.

Skin: WASH CONTAMINATED SKIN WITH SOAP AND WATER.  
OBTAIN MEDICAL ATTENTION IF IRRITATION DEVELOPS.  
LAUNDER CLOTHING BEFORE RE-USE.

Inhalation: MOVE VICTIM TO FRESH AIR. IF STOPPED BREATHING,  
GIVE ARTIFICIAL RESPIRATION. OBTAIN MEDICAL  
ATTENTION IMMEDIATELY.

Eyes: FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT  
LEAST 15 MINUTES, HOLDING EYES OPEN. OBTAIN  
MEDICAL ATTENTION IMMEDIATELY.

Notes to Physician: NO SPECIFIC ANTIDOTE. GIVE SUPPORTIVE CARE.  
TREATMENT BASED ON JUDGEMENT OF THE PHYSICIAN  
IN RESPONSE TO REACTIONS OF THE PATIENT.

Material Safety Data Sheet  
Effective Date: 16-DEC-1997  
Product: BARRAGE HF

#### VI. REACTIVITY

Stability: Stable  
Conditions to Avoid: DO NOT EXPOSE TO HEAT OR FLAME.  
Polymerization: Will Not Occur  
Conditions to Avoid: NONE CURRENTLY KNOWN.  
Incompatibility material: NONE CURRENTLY KNOWN.  
Hazardous Combustion: MAY PRODUCE HYDROGEN CHLORIDE (AN ACIDIC GAS)  
UNDER FIRE CONDITIONS.

#### VI. SPILL OR LEAK PROCEDURES

Spill or Leak Proc: CONTAIN SPILLS. REMOVE AS MUCH MATERIAL AS  
POSSIBLE INCLUDING CONTAMINATED SOIL. "DO NOT  
USE VACUUM TRUCK". USE ABSORBENT MATERIAL.  
TRANSFER TO RECOVERY DRUMS FOR PROPER DISPOSAL.  
Waste Disposal Method: THIS MATERIAL MUST BE DISPOSED OF ACCORDING TO  
FEDERAL, STATE, OR LOCAL PROCEDURES UNDER THE  
RESOURCE CONSERVATION AND RECOVERY ACT.

#### VIII. SPECIAL PROTECTION INFORMATION

Respiration: USE APPROVED NIOSH/MSHA AIR PURIFYING  
RESPIRATOR IF ATMOSPHERE CONTAINS LEVELS ABOVE  
TLV.  
Ventilation: GOOD GENERAL VENTILATION IS SUFFICIENT.  
Gloves: IMPERVIOUS  
Eyes: CHEMICAL WORKERS GOGGLES.  
Other: EYE WASH STATION, IMPERVIOUS APRON AND  
FOOTWEAR.

#### IX. SPECIAL PRECAUTIONS

Special precaution: KEEP OUT OF REACH OF CHILDREN. DO NOT STORE  
WITH FOOD, FEED, OR OTHER MATERIAL TO BE USED  
OR CONSUMED BY HUMANS OR ANIMALS. DO NOT  
CONTAMINATE WATER SUPPLIES, LAKES, STREAMS, OR  
PONDS. DO NOT APPLY WHEN WEATHER CONDITIONS  
FAVOR DRIFT FROM TARGET AREA, AS THIS PRODUCT  
MAY INJURE COTTON, BEANS, VEGETABLES, CERTAIN  
LEGUMES AND ORNAMENTALS.

Other precaution:  
A) RCRA HAZARDOUS WASTE NUMBER: U240 -2,4-D  
SALTS AND ESTERS  
B) SARA TITLE III, SECTION 313: 2,4-D  
(78.1%) 01/01/87  
C) SARA THRESHOLD PLANNING QUANTITY: 10,000  
LBS/MIXTURE

Material Safety Data Sheet  
Effective Date: 16-DEC-1997  
Product: BARRAGE HF

- D) CERCLA REPORTABLE QUANTITY: 21 GALLON
- E) 49 CFR 172.101, APPENDIX A: HAZARDOUS SUBSTANCE
- F) 49 CFR 172.101, APPENDIX B: MARINE POLLUTANT.

X. SHIPPING INFORMATION

Shipping name: RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCES,  
LIQUID, N.O.S., (2,4-D ACID ESTER), 9, UN3082,  
PG III "ERG GUIDE #171"  
Hazard Class: CLASS 9  
Identification No: UN3082  
Labels Required: CLASS 9  
Placarding: NO PLACARD REQUIRED  
Freight Class: COMPOUND, WEED KILLING, LIQUID, NOIBN(NMFC ITEM  
50320, CLASS 60)

| Chemical Name                        | Equivalent R.Q.  |
|--------------------------------------|------------------|
| 2,4-DICHLOROPHENOXYACETIC ACID ESTER | 100 LBS(45.4 KG) |

\*TRANSPORTATION NOTE; NOT REGULATED BY DOT IN SINGLE CONTAINERS LESS THAN  
21  
GALLONS.

XI. GENERAL PRODUCT INFORMATION

National Fire Protection Association Rating:  
(Rating level: 4-Extreme, 3-High, 2-Moderate, 1-Slight, 0-Minimum  
Health: 2 Fire: 2 Reactivity: 0

S.A.R.A. Title III Hazard Classification: (Yes/No)

Immediate (Acute) Health: Y Delayed (Chronic) Health: Y  
Sudden Release of pressure: N Fire: Y  
Reactive: N

Helena Chemical Company believes that the data contained herein  
is factual. This data is not to be taken as a warranty or  
representation of legal responsibility. It is offered solely  
for your consideration, investigation and verification.