1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Clincher* SF Herbicide

COMPANY IDENTIFICATION:
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Cyhalofop: R(+)-2-(4-(4-cyano-2-fluorophenoxy)phenoxy)propanoic acid, n-butyl ester
Balance, Total, Including Xylene Range Aromatic Contains:
1,2,4-Trimethylbenzene
Ethyltoluene
Cumene (isopropylbenzene)
Xylene
Polyglycol 26-3
CAS # 122008-85-9 29.6%
CAS # 064742-95-6 70.4%
CAS # 000095-63-6
CAS # 025550-14-5
CAS # 000098-82-8
CAS # 001330-20-7
CAS # 069029-39-6

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW
Amber to brown liquid with a slight aromatic odor. May cause eye and skin irritation and/or corneal injury. Toxic to aquatic organisms.

EMERGENCY PHONE NUMBER: 800-992-5994

4. FIRST AID:

EYES: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

SKIN: Wash skin with plenty of water.

INGESTION: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 113°F (45°C)
METHOD USED: Setalaflash

FLAMMABLE LIMITS
LFL: Not determined
UFL: Not determined

HAZARDOUS COMBUSTION PRODUCTS: During a fire, smoke may contain the original material in addition to unidentified toxic and/or irritating compounds. Hazardous combustion products may include and are not limited to nitrogen oxides, hydrogen fluoride, carbon monoxide, and/or carbon dioxide.

OTHER FLAMMABILITY INFORMATION: Dense smoke is produced when product burns. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids. Vapors are heavier than air and may travel a long distance and accumulate in low-lying areas. Ignition and/or flash back may occur.

EXTINGUISHING MEDIA: Water fog or fine spray, carbon dioxide, dry chemical or foam. Alcohol resistant foams (ATC type) are preferred if available. General-purpose synthetic foams (including AFFF) or protein foams may function, but much less effectively. DO NOT USE DIRECT WATER STREAM.

FIRE-FIGHTING INSTRUCTIONS: Keep people away. Isolate fire area and deny unnecessary entry. Stay upwind. Keep out of low areas where gases (fumes) can accumulate. Consider feasibility of a controlled burn to minimize environmental damage. Foam fire extinguishing system is preferred because uncontrolled water can spread possible contamination. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Burning liquids may be extinguished by dilution with water. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of re-ignition has passed. Do not use direct water stream. May spread fire. Eliminate ignition sources. Contain firewater run-off if possible. Fire water run-off, if not contained may cause environmental damage. Review the "Accidental Release Measures" and Ecological Information" sections of this MSDS.

*Trademark of Dow AgroSciences LLC
PROTECTIVE EQUIPMENT FOR FIREFIGHTERS: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire-fighting clothing (includes fire fighting helmet, coat, pants, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Vapor explosion hazard, keep out of sewers. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Absorb small spills with a non-reactive absorbent material such as sand or Zorball and place in a container suitable for disposal. Contain large spills and report to Dow AgroSciences at 800-992-5994.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING: Keep out of reach of children. Do not swallow. Avoid skin and eye contact. Avoid breathing vapors. Container’s, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers. Use of non-sparking or explosion proof equipment may be necessary, depending upon the type of operation. No smoking, open flames or sources of ignition in handling and storage area.

PRECAUTIONS TO BE TAKEN IN STORAGE: Minimize sources of ignition, such as static build-up, head, spark, or flame.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINE(S):

Xylene range aromatic solvent: none established. Supplier recommends a guideline of 50 ppm for the total product which is a mixture of petroleum hydrocarbons. Trimethylbenzene: ACGIH TLV is 25 ppm. Ethyltoluene: Dow AgroSciences Industrial Hygiene Guide is 10 ppm. Cumene (isopropylbenzene): ACGIH TLV and OSHA PEL are 50 ppm. OSHA classifies as Skin. Xylene: ACGIH TLV is 100 ppm TWA, 150 ppm STEL, A4. OSHA PEL is 100 ppm TWA. Polyglycol 26-3: Dow AgroSciences Industrial Hygiene Guide is 10 mg/M³.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guidelines.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use a NIOSH approved air-purifying respirator.

SKIN PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.

EYE/FACE PROTECTION: Use chemical goggles.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: 320-338°F (160-170°C) - for solvent
VAPOR PRESSURE: Not determined
VAPOR DENSITY: Not determined
SOLUBILITY IN WATER: Emulsifiable in water
DENSITY: 0.9615 g/mL @ 20°C
APPEARANCE: Amber to brown liquid
ODOR: Slight aromatic

10. STABILITY AND REACTIVITY:

STABILITY: Material is stable under recommended storage conditions. Product can decompose at elevated temperatures.

HAZARDOUS DECOMPOSITION: Hazardous decomposition products depend upon temperature, air supply and the presence of other materials.

INCOMPATIBLE MATERIALS: Avoid contact with oxidizing materials.

HAZARDOUS POLYMERIZATION: Not known to occur.
11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause moderate eye irritation, which may be slow to heal. May cause moderate corneal injury.

SKIN: Prolonged contact may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD$_{50}$ for skin absorption in rabbits is >5000 mg/kg. Did not cause allergic skin reactions when tested in guinea pigs.

INGESTION: Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. The oral LD$_{50}$ for rats is 1612 to <5000 mg/kg.

INHALATION: No adverse effects are anticipated from single exposure to vapor. Prolonged exposure is not expected to cause adverse effects. The LC$_{50}$ for rats is >5.19 mg/L.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Repeated exposure did not produce systemic toxicity when applied to the skin of rats.

CANCER INFORMATION: No relevant information found.

TERATOLOGY (BIRTH DEFECTS): No relevant information found.

REPRODUCTIVE EFFECTS: No relevant information found.

MUTAGENICITY: No relevant information found.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING: Based largely or completely on information for the active ingredient.

Bioconcentration potential is moderate (BCF is between 100 and 3000 or Log Pow between 3 and 5).

DEGRADATION & PERSISTENCE: Based largely or completely on information for the active ingredient.

Material is inherently biodegradable.

Reaches more than 20% biodegradation in OECD test(s) for inherent biodegradability.

Based largely or completely on information for the components in the solvent.

Biodegradation under aerobic static laboratory conditions is low (BOD$_{20}$ or BOD$_{28}$/ThOD is between 2.5 and 10%).

ECOTOXICOLOGY: Based largely or completely on information for the active ingredient.

Material is highly toxic to aquatic organisms on an acute basis (LC$_{50}$ or EC$_{50}$ is between 0.1 and 1 mg/L in most sensitive species).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

For non-bulk shipments by land:
This material is not regulated for transport.

For non-bulk shipments by air or vessel:
FLAMMABLE LIQUID, N.O.S.(CONTAINS AROMATIC HYDROCARBONS)/3/UN1993/PG III

For bulk shipments by land or vessel:
FLAMMABLE LIQUID, N.O.S.(CONTAINS AROMATIC HYDROCARBONS)/3/UN1993/PG III/RQ (XYLENE)
15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer’s responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS NUMBER</th>
<th>CONCENTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>000095-63-6</td>
<td>14-17%</td>
</tr>
<tr>
<td>Cumene</td>
<td>000098-82-8</td>
<td>0.75-1%</td>
</tr>
<tr>
<td>Xylene (mixed isomers)</td>
<td>001330-20-7</td>
<td>1-1.5%</td>
</tr>
</tbody>
</table>

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard

TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

<table>
<thead>
<tr>
<th>CHEMICAL NAME</th>
<th>CAS NUMBER</th>
<th>LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,2,4-Trimethylbenzene</td>
<td>000095-63-6</td>
<td>PA1 PA3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NJ2 NJ3</td>
</tr>
<tr>
<td>Cumene</td>
<td>000098-82-8</td>
<td>PA1 PA3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NJ2 NJ3</td>
</tr>
<tr>
<td>Xylene (mixed isomers)</td>
<td>001330-20-7</td>
<td>PA1 PA3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NJ1 NJ2 NJ3</td>
</tr>
</tbody>
</table>

NJ1=New Jersey Special Health Hazard Substance (present at greater than or equal to 0.1%).
NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).
NJ3=New Jersey Workplace Hazardous Substance (present at greater than or equal to 1.0%).
PA1=Pennsylvania Hazardous Substance (present at greater than or equal to 1.0%).
PA3=Pennsylvania Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): This product contains the following substance(s) listed as "Hazardous Substances" under CERCLA, which may require reporting of releases:

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS Number</th>
<th>RQ</th>
<th>% in Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumene</td>
<td>000098-82-8</td>
<td>5000</td>
<td>0.75-0.1%</td>
</tr>
<tr>
<td>Xylene</td>
<td>001330-20-7</td>
<td>100</td>
<td>1.0-1.5%</td>
</tr>
</tbody>
</table>

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>2</td>
</tr>
<tr>
<td>Flammability</td>
<td>2</td>
</tr>
<tr>
<td>Reactivity</td>
<td>0</td>
</tr>
</tbody>
</table>
16. OTHER INFORMATION:

**MSDS STATUS:** Revised Sections: 2, 3, 4, 8, 11, 12, 13, 14, 15
Reference: DR-0361-7785
Replaces MSDS Dated: 5/25/00
Document Code: D03-161-002
Replaces Document Code: D03-161-001