Dow AgroSciences

Material Safety Data Sheet

DOW AGROSCIENCES INDIA PVT. LTD.

Product name: Penoxsulam 1.02 % w/w + Cyhalofop Butyl 5.1 % w/w OD Herbicide

Issue Date: 25.01.2016

Print Date: 23.02.2016

DOW AGROSCIENCES INDIA PVT. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Penoxsulam 1.02 % w/w + Cyhalofop Butyl 5.1 % w/w OD Herbicide

Recommended use of the chemical and restrictions on use
Identified uses: Plant Protection Product

COMPANY IDENTIFICATION
DOW AGROSCIENCES INDIA PVT. LTD.
1ST FLOOR, BLOCK B, 02, GODREJ IT PARK
GODREJ BUSINESS DISTRICT
PIROJSHANAGAR, L.B.S MARG.,
400079 VIKHROLI, MUMBAI
INDIA

Customer Information Number: (91) 22-6674-1500
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: (91-2356-272046)
Local Emergency Contact: 22-6674-1800

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

CASRN / EC-No. / Index-No.	Concentration	Component	Classification
CASRN 122008-85-9 **EC-No.** – **Index-No.** –	5.1%	Cyhalofop-butyl	N - R50/53
CASRN 219714-96-2 **EC-No.** Not available **Index-No.**	1.0%	Penoxsulam	N - R50/53

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CASRN 69029-39-6 **EC-No.** Polymer **Index-No.** –	> 30.0 - < 40.0 %	Alkylphenol alkoxylate	N - R51/53
CASRN 64742-94-5 **EC-No.** 265-198-5 **Index-No.** 649-424-00-3	> 10.0 - < 20.0 %	solvent naphtha (petroleum), heavy arom.	Carc.Cat.3 - R40 Xn - R65 R66 R67 N - R51/53
CASRN 91-20-3 **EC-No.** 202-049-5 **Index-No.** 601-052-00-2	< 5.0 %	Naphthalene	Carc.Cat.3 - R40 Xn - R22 N - R50 - R53
CASRN 64742-94-5 **EC-No.** 265-198-5 **Index-No.** 649-424-00-3	< 5.0 %	solvent naphtha (petroleum), heavy arom.	Xn - R65 R66 N - R51/53
CASRN 68953-96-8 **EC-No.** 273-234-6 **Index-No.** –	< 5.0 %	Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts	Xn - R21 Xi - R38 - R41 R52/53
CASRN 108-67-8 **EC-No.** 203-604-4 **Index-No.** 601-025-00-5	< 1.0 %	Mesitylene; 1,3,5-trimethylbenzene	R10 Xi - R37 Xn - R65 N - R51 - R53
CASRN 67-56-1 **EC-No.** 200-659-6 **Index-No.** 603-001-00-X	< 1.0 %	Methanol	F - R11 T - R23/24/25 - R39/23/24/25
CASRN 95-63-6 **EC-No.** 202-436-9 **Index-No.** 601-043-00-3	< 1.0 %	1,2,4-trimethylbenzene	R10 Xn - R20 - R65 Xi - R36/37/38 N - R51 - R53
CASRN	< 1.0 %	Silica	Not classified

7631-86-9 **EC-No.** 231-545-4 **Index-No.** –			

The full text of each R phrase is listed in section 16.

3. HAZARDS IDENTIFICATION

Hazard classification
Classified as hazardous according to regulatory criteria.
Harmful: may cause lung damage if swallowed.
Irritating to eyes.
Vapours may cause drowsiness and dizziness.
Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Other hazards
No data available

4. FIRST AID MEASURES

Description of first aid measures
General advice: First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air. If person is not breathing, call an emergency responder or ambulance, then give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask etc). Call a poison control center or doctor for treatment advice.

Skin contact: Take off contaminated clothing. Wash skin with soap and plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice. Wash clothing before reuse. Shoes and other leather items which cannot be decontaminated should be disposed of properly.

Eye contact: Hold eyes open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eyes. Call a poison control center or doctor for treatment advice. Suitable emergency eye wash facility should be available in work area.

Ingestion: Immediately call a poison control center or doctor. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give any liquid to the person. Do not give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. The decision of whether to induce vomiting or not should be made by a physician. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Have the Safety Data Sheet, and if available, the product container or label with you when calling a poison control center or doctor, or going for treatment.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water fog or fine spray. Dry chemical fire extinguishers. Carbon dioxide fire extinguishers. Foam. General purpose synthetic foams (including AFFF type) or protein foams are preferred if available. Alcohol resistant foams (ATC type) may function.

Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture
Hazardous combustion products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. Do not use direct water stream. May spread fire. Move container from fire area if this is possible without hazard. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Review the "Accidental Release Measures" and the "Ecological Information" sections of this (M)SDS.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). Avoid contact with this material during fire fighting operations. If contact is likely, change to full chemical resistant fire fighting clothing with self-contained breathing apparatus. If this is not available, wear full chemical resistant clothing with self-contained breathing apparatus and fight fire from a remote location. For protective equipment in post-fire or non-fire clean-up situations, refer to the relevant sections.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Isolate area. Keep unnecessary and unprotected personnel from entering the area. No smoking in area. Refer to section 7, Handling, for additional precautionary measures. Ventilate area of leak or spill. Keep upwind of spill. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information. Spills or discharge to natural waterways is likely to kill aquatic organisms.

Methods and materials for containment and cleaning up: Contain spilled material if possible. Small spills: Absorb with materials such as: Clay. Dirt. Sand. Sweep up. Collect in suitable and properly labeled containers. Large spills: Contact Dow AgroSciences for clean-up assistance. See Section 13, Disposal Considerations, for additional information.

7. HANDLING AND STORAGE

Precautions for safe handling: Keep out of reach of children. Keep away from heat, sparks and flame. Do not swallow. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling. Keep container closed. Use with adequate ventilation. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Containers, even those that have been emptied, can contain vapors. Do not cut, drill, grind, weld, or perform similar operations on or near empty containers.

Conditions for safe storage: Store in a dry place. Store in original container. Keep container tightly closed when not in use. Do not store near food, foodstuffs, drugs or potable water supplies.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
Alkylphenol alkoxylate	Dow IHG	TWA	2 mg/m3
solvent naphtha (petroleum), heavy arom.	Dow IHG	TWA	100 mg/m3
	Dow IHG	STEL	300 mg/m3
Naphthalene	ACGIH	TWA	10 ppm
	ACGIH	TWA	SKIN
	Dow IHG	TWA	10 ppm
	Dow IHG	TWA	SKIN
	Dow IHG	STEL	15 ppm
	Dow IHG	STEL	SKIN
	IN OEL	TWA	50 mg/m3 10 ppm
	IN OEL	STEL	75 mg/m3 15 ppm
solvent naphtha (petroleum), heavy arom.	Dow IHG	TWA	100 mg/m3
	Dow IHG	STEL	300 mg/m3
Mesitylene; 1,3,5-trimethylbenzene	ACGIH	TWA	25 ppm
Methanol	ACGIH	TWA	200 ppm
	ACGIH	STEL	250 ppm
	ACGIH	TWA	SKIN, BEI
	ACGIH	STEL	SKIN, BEI
	IN OEL	STEL	310 mg/m3 250 ppm

	IN OEL	TWA	260 mg/m3	200 ppm
	IN OEL	TWA		SKIN
	IN OEL	STEL		SKIN
1,2,4-trimethylbenzene	ACGIH	TWA		25 ppm
Silica	Dow IHG	TWA Respirable fraction.		0.2 mg/m3

RECOMMENDATIONS IN THIS SECTION ARE FOR MANUFACTURING, COMMERCIAL BLENDING AND PACKAGING WORKERS. APPLICATORS AND HANDLERS SHOULD SEE THE PRODUCT LABEL FOR PROPER PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Styrene/butadiene rubber. Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyvinyl chloride ("PVC" or "vinyl"). Butyl rubber. Chlorinated polyethylene. When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.
Use the following CE approved air-purifying respirator: Organic vapor cartridge with a particulate pre-filter, type AP2.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Liquid.
Color	Yellow
Odor	Sweet
Odor Threshold	No test data available
pH	6.86 (1% aqueous suspension)
Melting point/range	Not applicable
Freezing point	No test data available
Boiling point (760 mmHg)	No test data available
Flash point	**closed cup** 72.5 °C *Pensky-Martens Closed Cup ASTM D 93*
Evaporation Rate (Butyl Acetate = 1)	No test data available
Flammability (solid, gas)	Not Applicable
Lower explosion limit	No test data available
Upper explosion limit	No test data available
Vapor Pressure	No test data available
Relative Vapor Density (air = 1)	No test data available
Relative Density (water = 1)	No test data available
Water solubility	emulsifiable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No test data available
Decomposition temperature	No test data available
Dynamic Viscosity	No test data available
Kinematic Viscosity	No test data available
Explosive properties	No
Oxidizing properties	No significant increase (>5C) in temperature.
Liquid Density	0.976 g/cm3 at 20 °C *Digital density meter*
Molecular weight	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Thermally stable at typical use temperatures.

Possibility of hazardous reactions: Polymerization will not occur.

Conditions to avoid: Active ingredient decomposes at elevated temperatures. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Strong oxidizers.

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

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product:
LD50, Rat, female, > 5,000 mg/kg

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product:
LD50, Rat, male and female, > 5,000 mg/kg

Acute inhalation toxicity
No adverse effects are anticipated from single exposure to mist. Based on the available data, narcotic effects were not observed. Based on the available data, respiratory irritation was not observed.

As product:
LC50, Rat, male and female, 4 Hour, dust/mist, > 6.36 mg/l No deaths occurred at this concentration.

Skin corrosion/irritation
Prolonged contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
May cause moderate eye irritation.
May cause slight corneal injury.

Sensitization
For similar material(s):
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
For the active ingredient(s):
Kidney.
Liver.
Gall bladder.

Based on information for component(s):
Cataracts and other eye effects have been reported in humans repeatedly exposed to naphthalene vapor or dust.
Ingestion of naphthalene by humans has caused hemolytic anemia.
Excessive exposure may cause hemolysis, thereby impairing the blood's ability to transport oxygen.
In animals, effects have been reported on the following organs:
Gastrointestinal tract.
Kidney.
Liver.
Thyroid.
Urinary tract.
Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Carcinogenicity
Contains naphthalene which has caused cancer in some laboratory animals. In humans, there is limited evidence of cancer in workers involved in naphthalene production. Limited oral studies in rats were negative. For the active ingredient(s): Did not cause cancer in laboratory animals.

Teratogenicity
For the active ingredient(s): Cyhalofop butyl. Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Active ingredient did not cause birth defects in laboratory animals.

Reproductive toxicity
For the active ingredient(s): In animal studies, did not interfere with reproduction.

Mutagenicity
For the active ingredient(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

For the minor component(s): In vitro genetic toxicity studies were negative in some cases and positive in other cases.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing lung damage or even death due to chemical pneumonia.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Acute toxicity to fish
Based on information for component(s):

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

As product:
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 10.6 mg/l

Acute toxicity to aquatic invertebrates
As product:
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, 18.2 mg/l

Acute toxicity to algae/aquatic plants
As product:
ErC50, Pseudokirchneriella subcapitata (microalgae), 72 Hour, Growth rate inhibition, 10.7 mg/l, OECD Test Guideline 201

For the active ingredient(s):
EbC50, Lemna minor (duckweed), 14 d, Biomass, 0.00329 mg/l

Toxicity to Above Ground Organisms
Material is practically non-toxic to birds on an acute basis (LD50 > 2000 mg/kg).

oral LD50, Colinus virginianus (Bobwhite quail), > 2250mg/kg bodyweight.

oral LD50, Apis mellifera (bees), 48 Hour, > 200micrograms/bee

contact LD50, Apis mellifera (bees), 48 Hour, > 200micrograms/bee

Toxicity to soil-dwelling organisms
LC50, Eisenia fetida (earthworms), 14 d, 314.1 mg/kg

Persistence and degradability

Cyhalofop-butyl

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 40 %
Exposure time: 29 d
Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 1.93 mg/mg

Stability in Water (1/2-life)
, 7 d

Photodegradation
Atmospheric half-life: 5.88 Hour
Method: Measured

Penoxsulam

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 14.7 %
Exposure time: 28 d
Method: OECD Test Guideline 301B or Equivalent

Photodegradation
Sensitizer: OH radicals
Atmospheric half-life: 2.1 Hour
Method: Estimated.

Alkylphenol alkoxylate

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

solvent naphtha (petroleum), heavy arom.

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 39 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Naphthalene

Biodegradability: Material is expected to be readily biodegradable.

solvent naphtha (petroleum), heavy arom.

Biodegradability: For similar material(s): Biodegradation may occur under aerobic conditions (in the presence of oxygen). Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

Biodegradability: No relevant data found.

Mesitylene; 1,3,5-trimethylbenzene

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
10-day Window: Not applicable
Biodegradation: 50 %
Exposure time: 4.4 d
Method: Calculated.

Methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 99 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

1,2,4-trimethylbenzene
Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 4 - 18 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

Silica
Biodegradability: Biodegradation is not applicable.

Bioaccumulative potential

Cyhalofop-butyl
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.32 Measured
Bioconcentration factor (BCF): < 7 Fish 28 d Measured

Penoxsulam
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.602 Measured

Alkylphenol alkoxylate
Bioaccumulation: No bioconcentration is expected because of the relatively high water solubility. May foam in water.

solvent naphtha (petroleum), heavy arom.
Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 2.9 - 6.1 Measured

Naphthalene
Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.3 Measured
Bioconcentration factor (BCF): 40 - 300 Fish 28 d Measured

solvent naphtha (petroleum), heavy arom.
Bioaccumulation: For similar material(s): Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts
Bioaccumulation: No relevant data found.

Mesitylene; 1,3,5-trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.42 Measured
Bioconcentration factor (BCF): 161 Pimephales promelas (fathead minnow) Measured

Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.77 Measured
Bioconcentration factor (BCF): < 10 Fish Measured

1,2,4-trimethylbenzene

Bioaccumulation: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).
Partition coefficient: n-octanol/water(log Pow): 3.63 Measured
Bioconcentration factor (BCF): 33 - 275 Cyprinus carpio (Carp) 56 d Measured

Silica

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Mobility in Soil

Cyhalofop-butyl

Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient(Koc): 5247 Measured

Penoxsulam

Potential for mobility in soil is high (Koc between 50 and 150).
Partition coefficient(Koc): 73 Measured

Alkylphenol alkoxylate

No data available.

solvent naphtha (petroleum), heavy arom.

No relevant data found.

Naphthalene

Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient(Koc): 240 - 1300 Measured

solvent naphtha (petroleum), heavy arom.

No data available.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

No relevant data found.

Mesitylene; 1,3,5-trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient(Koc): 741.65 Estimated.

Methanol

Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): 0.44 Estimated.

1,2,4-trimethylbenzene

Potential for mobility in soil is low (Koc between 500 and 2000).
Partition coefficient(Koc): 720 Estimated.

Silica

No relevant data found.

Results of PBT and vPvB assessment

Cyhalofop-butyl

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Penoxsulam

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Alkylphenol alkoxylate

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

solvent naphtha (petroleum), heavy arom.

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Naphthalene

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

solvent naphtha (petroleum), heavy arom.

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Mesitylene; 1,3,5-trimethylbenzene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Methanol

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

1,2,4-trimethylbenzene

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Silica

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

Cyhalofop-butyl

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Penoxsulam

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Alkylphenol alkoxylate

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

solvent naphtha (petroleum), heavy arom.

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Naphthalene

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

solvent naphtha (petroleum), heavy arom.

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Benzenesulfonic acid, mono-C11-13-branched alkyl derivs., calcium salts

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Mesitylene; 1,3,5-trimethylbenzene

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Methanol

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

1,2,4-trimethylbenzene

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

Silica

This substance is not in Annex I of Regulation (EC) No 1005/2009 on substances that deplete the ozone layer.

13. DISPOSAL CONSIDERATIONS

Disposal methods: 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.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Cyhalofop-butyl, Alkylphenol alkoxylate)
UN number	UN 3082
Class	9
Packing group	III
Environmental hazards	Cyhalofop-butyl, Alkylphenol alkoxylate

Classification for SEA transport (IMO-IMDG):

Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.(Cyhalofop-butyl, Alkylphenol alkoxylate)
UN number	UN 3082
Class	9
Packing group	III
Marine pollutant	Cyhalofop-butyl, Alkylphenol alkoxylate
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Environmentally hazardous substance, liquid, n.o.s.(Cyhalofop-butyl, Alkylphenol alkoxylate)
UN number	UN 3082
Class	9
Packing group	III

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Label
Classification and labeling have been performed according to regulations.

Hazard symbol and Indication of danger

Xn Harmful

Contains: solvent naphtha (petroleum), heavy arom.; Naphthalene; solvent naphtha (petroleum), heavy arom.

R-phrase(s)

R65	Harmful: may cause lung damage if swallowed.
R36	Irritating to eyes.
R67	Vapours may cause drowsiness and dizziness.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S24	Avoid contact with skin.
S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S35	This material and its container must be disposed of in a safe way.
S62	If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

To avoid risks to man and the environment, comply with the instructions for use.

16. OTHER INFORMATION

Full text of the R-phrases given in Section 2

R10	Flammable.
R11	Highly flammable.
R20	Harmful by inhalation.
R21	Harmful in contact with skin.
R22	Harmful if swallowed.
R23/24/25	Toxic by inhalation, in contact with skin and if swallowed.
R36/37/38	Irritating to eyes, respiratory system and skin.
R37	Irritating to respiratory system.
R38	Irritating to skin.
R39/23/24/25	Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.
R40	Limited evidence of a carcinogenic effect.
R41	Risk of serious damage to eyes.
R50	Very toxic to aquatic organisms.
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R51	Toxic to aquatic organisms.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R53	May cause long-term adverse effects in the aquatic environment.

R65	Harmful: may cause lung damage if swallowed.
R66	Repeated exposure may cause skin dryness or cracking.
R67	Vapours may cause drowsiness and dizziness.

Revision

Identification Number: 101197720 / A147 / Issue Date: 25.01.2016 / Version: 1.1
DAS Code: GF-1622
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
IN OEL	India. Permissible levels of certain chemical substances in work environment.
SKIN	Absorbed via skin
SKIN, BEI	Absorbed via Skin, Biological Exposure Indice
STEL	Short term exposure limit
TWA	Time weighted average

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