


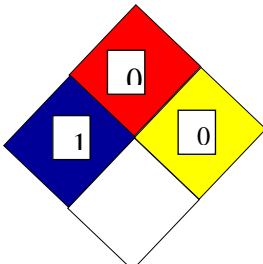


Safety Data Sheet




Revision date: 20.01.2016

Date of issue: 20.01.2016


Sr. No.	Title of the section	Information required in this section
1.	Identification of the substance & of the company	
1.1	Identification of the substance or preparation	1.1.1 Trade Name: Quizalofop EC ABN: Se-CURE EC Herbicide 1.1.2 EPA Registration No.: 83529-15
1.2	Other identification	1.2.1 Substance name: Propanoic acid, 2-[4-[(6-chloro-2-quinoxalinyloxy)phenoxy]-, ethyl ester, (2R)- 1.2.2 CAS No.: 100646-51-3
1.3	Use of the substance/ preparation	1.3.1 Recommended uses: ✓ Herbicide 1.3.2 Restricted uses: Not known as on date
1.4	Company/ under - taking identification	1.4.1 Company name: Sharda USA LLC 1.4.2 Contact Person : Sharon Gunning, Director, Supply Chain and Administrative Operations 1.4.3 Telephone number: +91 22 5678 2800 1.4.4 Fax number : +91 22 5678 2828, +91 22 5678 2808 1.4.5 E-mail : shardain@vsnl.com ; WEBSITE: http://www.shardausa.com
1.5	Emergency telephone	1.5.1 Emergency telephone number : 1(800) 222-1222 CHEMTREC PHONE: 1(800) 424-9300 National Poison Information Center : (800)-222-1222 1.5.2 Telephone number of USA importer: (610) 350-6930 1.5.3 Opening hours: 24 hrs
2.	Hazard Identification	
2.1	Classification of the substance according to Regulation US-GHS	Acute Tox. 4 – Oral (H302 – Harmful if swallowed) Aquatic Chronic 2 (H411: Toxic to aquatic life with long lasting effects)
2.2	Label elements : Labelling in accord with US GHS requirements	2.2.1 Signal word – Warning 2.2.2 Hazard statements – H302 – Harmful if swallowed H411 – Toxic to aquatic life with long lasting effects 2.2.3 Hazard pictograms –  GHS07  GHS09 2.2.4 Precautionary statements – P264 - Wash face, hands and any exposed skin thoroughly after handling P270 - Do not eat, drink or smoke when using this product. P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P501 – Dispose of contents/ container in accordance with local/ regional/ national/ international regulation P273 - Avoid release to the environment. P391 - Collect spillage P330 - Rinse mouth
2.3	Other Information	Hazard Ratings : NFPA Health: 1 Flammability: 0 Reactivity: 0  Hazard Ratings : HMIS Health: 1 Flammability: 0 Reactivity: 0  ROUTES OF ENTRY: Ingestion, Inhalation, eye, and dermal contact

3. Composition /Information on Ingredients		
3.1	Composition	Chemical name : Propanoic acid, 2-[4-[(6-chloro-2-quinoxalinyloxy)phenoxy]-, ethyl ester, (2R)- Chemical Formula : C ₁₉ H ₁₇ ClN ₂ O ₄ Molecular weight : 372.8 g/mol CAS no. : 100646-51-3 % concentration : > 99 %
3.2	Common name and synonyms	Chemical Name : Quizalofop-p-ethyl CHEMICAL FAMILY: Aryloxyphenoxypropionate Synonyms : <ul style="list-style-type: none"> • (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]propionate DPX-Y6202; • ethyl (R)-2-[4-(6-chloroquinoxalin-2-yloxy)phenoxy]propionate; • Ethyl (R)-2-[4-(6-chloro-2-quinoxalyloxy)phenoxy]propionate • 2-(4-((6-chloro-2-quinoxalinyloxy)phenoxy)-,ethylester,(r)-propanoicaci • Assureii • QUIZALOFOP-P-ETHYL • Quizalofop ethyl ester • Quizalofop-P-ethyl (ISO)
3.3	Classified Impurities and stabilizing additives contributing to classification of the chemical	No major known impurity have Carcinogen, Mutagen &Reprotoxic (CMR) classification which can contribute to the Classification & Labelling of the chemical.
4. First Aid Measures		
4.1	Description of first aid measures	<p>- Inhalation: Move person to fresh air. If person is not breathing, call 911 or an ambulance then give artificial respiration, preferably mouth to mouth, if possible. Call a poison control center or doctor for further treatment advice.</p> <p>- Skin contact: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.</p> <p>- Eye contact: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after first 5 minutes, then continue rinsing eye.</p> <p>- Oral: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.</p>
4.2	Important symptoms & effects	The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
4.3	Immediate medical attention	<p>Notes for the doctor: There is no specific antidote. Appropriate supportive and symptomatic treatment as indicated by the patient's condition is recommended.</p> <p>For 24-hour medical emergency assistance (human or animal) call 1-800-222-1222. For chemical emergency assistance (spill, leak, fire, or accident) call ChemTrec at 1-800-424-9300.</p>
5. Fire Fighting Measures		
5.1	suitable extinguishing media	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
5.2	Special hazard arising from the chemical	Carbon oxides, Hydrogen chloride gas, nitrogen oxides (NOx)
5.3	Special protective equipment and precautions for firefighters	As in any fire, wear full protective clothing and self-contained breathing apparatus with full face piece operated in pressure-demand or other positive pressure mode.

6.	Accidental Release Measures	
6.1	Personal precautions, protective equipment and emergency procedures	<p>6.1.1 For non-emergency personnel</p> <ul style="list-style-type: none"> ➤ Protective equipment: Wear appropriate protective eyeglasses, splash goggles or chemical safety goggles and appropriate respiratory equipments. Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls as appropriate to prevent skin contact. ➤ Emergency procedures: Remove an incapacitated worker from further exposure. Keep unconscious victims warm and on their sides to avoid choking if vomiting occurs. Initiate the measures / procedures as mentioned in Section 4. ➤ Removal of ignition sources: Disconnect electrical connection and all other sources of ignition. ➤ Provision of sufficient ventilation: Adequate ventilation should be provided when accidental release occurs. <p>6.1.2 For emergency responders: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Do not touch the spilled material. Avoid the spread of the spillage by using adsorbents, if this can be done without risks. Ground all equipment containing material.</p>
6.2	Methods and material for containment and cleaning up	<p>(a) Cleaning techniques: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.</p> <p>(b) Vacuuming techniques: Sweep or vacuum up spillage and collect in suitable container for disposal</p> <p>(c) Equipment required for containment/clean-up: Use approved industrial vacuum cleaner for removal. Shovel into suitable container for disposal.</p>
7.	Handling and Storage	
7.1	Precautions for safe handling	<p>7.1.1. Recommendations shall be specified to:</p> <p>Read label carefully before use. Avoid contact with skin, eyes or clothing. Avoid breathing dust. Remove personal protective equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.</p> <p>7.1.2. Advice on general occupational hygiene:</p> <ul style="list-style-type: none"> (a) not to eat, drink and smoke in work areas (b) to wash hands after use; and (c) To remove contaminated clothing and protective equipment before entering eating areas
7.2	Conditions for safe storage, including any incompatibilities	<p>(a) How to manage risks associated with storage :</p> <p>Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco product in the storage area. Prevent eating, drinking, tobacco use and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.</p> <p>(b) Other advice including: Do not contaminate water, food, or feed by storage or disposal. Store in cool place. Keep container tightly closed in a dry and well-ventilated place.</p>
8.	Exposure Controls / Personal Protection	
8.1	Control parameters	<p>OSHA permissible exposure limit (PEL): Not available American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV): Not available ADI: Not Available MCL: Not Available RfD: Not Available</p>
8.2	Exposure controls	
8.2.1	Appropriate engineering controls	<p>A system of general or local exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value needs to be provided. Ensure that eyewash stations and safety showers are proximal to the work-station location. Do not release to the atmosphere or water streams.</p>

<p>8.2.2</p>	<p>Individual protection measures</p>	<p>(a) Eye / face protection: Wear appropriate protective eyeglasses, splash goggles or chemical safety goggles and face shield.</p>  <p>(b) Skin protection: Wear appropriate protective clothing like impervious lab coat, apron or coveralls.</p> <p>(i) Hand protection: Use compatible chemical / solvent resistant protective gloves made of suitable materials like rubber, plastic, etc.</p>  <p>(ii) Other: Wear appropriate boots and other footwear.</p> <p>(c) Respiratory protection: In case of brief exposure or low pollution, use respiratory filter device. In case of intensive or longer exposure, use self-contained respiratory protective device. Short term filter device: Filter AX. In case of emergency spills, use a NIOSH approved respirator with any N, R, P, or HE filter.</p>  <p>(d) General protective and hygienic measures:</p> <ul style="list-style-type: none"> • Keep away from foodstuffs, beverages and feed. • Immediately remove all soiled and contaminated clothing. • Wash hands before breaks and at the end of work. • Store protective clothing separately.
<p>9. Physical & Chemical Properties</p>		
<p>9.1</p>	<p>Information on basic physical and chemical properties</p>	<p>(a) Appearance: Amber coloured liquid (b) Odour: Pungent (c) Auto-ignition temperature: 400 deg C (d) pH: 5.38 (e) Melting point/freezing point: 76 -77°C (f) Initial boiling point and boiling range: 503.9 °C at 760 mmHg (g) Flash point: 98.9 °C (h) Vapour pressure : 6.49E-09 mmHg (i) Flammability (solid, gas): Not applicable (j) Upper/lower flammability or explosive limits: Not applicable (k) Solubility in water: 4 mg/L at 25 °C (l) Partition coefficient: n-octanol/water: Log Kow: 4.28 (m) Density: 1.301 g/cm³</p>
<p>9.2</p>	<p>Other information</p>	<p>Specific Gravity (H₂O = 1): 1.007 g/cm³</p>
<p>10. Stability and Reactivity</p>		
<p>10.1</p>	<p>Reactivity</p>	<p>Not known</p>
<p>10.2</p>	<p>Chemical stability</p>	<p>Stable at normal temperature and pressure</p>
<p>10.3</p>	<p>Possibility of hazardous reactions</p>	<p>No information known</p>
<p>10.4</p>	<p>Conditions to avoid</p>	<p>Not known</p>
<p>10.5</p>	<p>Incompatible materials</p>	<p>Strong oxidizing agents</p>
<p>10.6</p>	<p>Hazardous decomposition products</p>	<p>Thermal decomposition or combustion may produce gases such as hydrogen chloride, hydrogen cyanide, and oxides of carbon and nitrogen.</p>

11. Toxicological Information	
11.1	<p>Information on toxicological effects</p> <p>(a) acute toxicity: ✓ Oral toxicity in category 4</p> <p>(b) skin corrosion/irritation: Not irritant</p> <p>(c) serious eye damage/irritation: Not irritant</p> <p>(d) respiratory or skin sensitization: Not sensitizing</p> <p>(e) germ cell mutagenicity: no evidence in vivo assays</p> <p>(f) carcinogenicity: No evidence of carcinogenicity in the rat mouse studies</p> <p>(g) Reproductive/ developmental toxicity: No evidence.</p> <p>(h) STOT-SE/RE: No specific target organ toxicity known indicating permanent deformity</p>
11.2	<p>Numerical measures of toxicity (such as acute toxicity estimates)</p> <p>✓ Oral LD50 (rat) = 1182 mg/Kg</p> <p>✓ Oral Acute oral LD50 for male rats 1210, female rats 1182, male mice 1753, female mice 1805 mg/kg. NOEL (90 d) for rats 7.7 mg/kg daily.</p> <p>✓ Dermal LD50 (rat) = > 2000 mg/Kg</p> <p>✓ Chronic toxicity: In a 1-year feeding study on dogs, doses of up to 10 mg/kg/day (the highest dose tested in that study) caused no observed effects. In a 90-day feeding study in rats, doses of 6.4 mg/kg/day and higher produced liver lesions and increased liver weight. In a 2-year study of rats, doses of 5 mg/kg/day produced no observed effects.</p> <p>✓ Reproductive effects: A 6-month study in dogs found atrophy of the seminiferous tubules at doses of 2.5 mg/kg/day, but was unclear whether this was extensive enough to result in impaired reproductive function. These data are insufficient to draw conclusions regarding the likely reproductive effects of quizalofop-p-ethyl in animals, but suggest that effects on human reproduction are unlikely under normal circumstances.</p> <p>✓ Teratogenic effects: In a two-generational study in rats, doses of 2.5 mg/kg/day and higher produced increased liver weights in offspring. No teratogenic effects were observed in another study in rats at doses of up to 300 mg/kg/day (the highest doses tested) over an unspecified period, although maternal decreases in body weight, food consumption, and corpora lutea were observed at doses of 100 mg/kg/day. These data suggest that teratogenic or developmental effects are unlikely in humans.</p> <p>✓ Mutagenic effects: The results of many assays for mutagenicity and genotoxicity of quizalofop-p-ethyl show no mutagenic or genotoxic activity. Quizalofop-p-ethyl was not found to be mutagenic in the AMES assay, either with or without metabolic activation, nor was mutagenic activity seen in Chinese hamster ovary cell culture tests. Assays for chromosome structural aberrations and alterations in DNA damage repair capacity were also negative.</p> <p>✓ Carcinogenic effects: In an 18-month carcinogenicity study on mice, increased liver weights, changes in blood chemistry, and some changes in liver tissue structure were detected, but no carcinogenic or tumor-causing activity was reported. This study suggests that this compound is not carcinogenic.</p>
11.3	<p>Chemical if, listed in NTP or IARC or by OSHA as Carcinogens</p> <p>No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC</p>
11.4	<p>Other information - additional details but no supporting data available to prove the same</p> <p>Potential health effects</p> <ul style="list-style-type: none"> • May be harmful if inhaled. May cause respiratory tract irritation. • Harmful if swallowed. • Harmful if absorbed through skin. May cause skin irritation. • May cause eye irritation.
12. Ecological Information	
12.1	<p>Eco – Toxicity</p> <p>Fish: LC50 = 2.307 mg/L in 96 hrs Fish: LC50 = 9.835mg.L in 14-day Daphnia : LC50 = 3.503 mg/L in 48 hrs Daphnia : ChV = 1.208 mg/L in 21 d Green Algae: ChV = 0.627 mg/L (duration not known) Green Algae: EC50 = 2.566 mg/L in 96 hr</p>

12.2	Persistence and degradability	Probability of Rapid Biodegradation (BIOWIN v4.10): Biowin1 (Linear Model) : 0.8256 Biowin2 (Non-Linear Model) : 0.9863 Expert Survey Biodegradation Results: Biowin3 (Ultimate Survey Model): 2.1927 (months) Biowin4 (Primary Survey Model) : 3.5277 (days-weeks) MITI Biodegradation Probability: Biowin5 (MITI Linear Model) : 0.4087 Biowin6 (MITI Non-Linear Model): 0.1156 Anaerobic Biodegradation Probability: Biowin7 (Anaerobic Linear Model): -0.1008 Ready Biodegradability Prediction: NO
12.3	Bioaccumulative potential	Log BCF from regression-based method = 2.491 (BCF = 309.7 L/kg wet-wt) Log Biotransformation Half-life (HL) = -0.8284 days (HL = 0.1485 days) Log BCF Arnot-Gobas method (upper trophic) = 1.791 (BCF = 61.84) Log BAF Arnot-Gobas method (upper trophic) = 1.791 (BAF = 61.84) log Kow used: 4.28 (expkow database)
12.4	Environmental fate (exposure)	Quizalofop-p-ethyl is moderately persistent in soils, with a reported half-life of 60 days. It may be more rapidly broken down in soil with high microbial activity. It is moderately to strongly sorbed to soils, and studies indicate very low soil mobility
12.5	Other adverse effects	Environmental fate (exposure): Breakdown in vegetation: No data are available regarding the breakdown of the compound; however, it is absorbed from the leaf surface and translocated throughout the plant. It accumulates in the active growing regions of stems and roots
13. Disposal Considerations		
13.1	Waste treatment methods	<p>(a) Waste treatment containers and methods: <u>Waste Disposal Method:</u> Product disposal – Pesticide wastes may be acutely hazardous. Improper disposal is a violation of federal law. Pesticide, mixtures, or equipment rinse water that cannot be chemically reprocessed must be disposed of according to applicable federal, state or local regulations. Contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative at the nearest EPA Regional office for guidance. <u>Container disposal</u> – Dispose of product containers, waste containers, and residues according to label instructions and local, state, and federal health and environmental regulations.</p> <p>(b) Sewage disposal: Sewage disposal shall be discouraged</p>
13.2	Additional information:	RCRA HAZARD CLASS: Under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste.
14. Transport Information		
	(Information includes RID, ADR, AND, DOT, ICAO, IMDG, IATA-DGR)	14.1. UN number : 3082 (ADR/RID; DOT; IMDG; IATA)  14.2. UN proper shipping name : Environmentally hazardous substance, liquid, n.o.s. (10% Quizalofop-p-ethyl) 14.3. Transport hazard class(es): 9 14.4. Packing group :III 14.5. Environmental hazards (e.g., Marine pollutant (Yes/No)) : Yes 14.6. Special precautions for user : Not required 14.7. Quantity specification : for single packaging's and combination packaging's containing inner packaging's with Dangerous Goods > 5L for liquids or > 5kg for solids

15. Regulatory Information		
15.1	Safety, health and environmental regulations/legislation	<ul style="list-style-type: none"> • Product related hazard information : The product has been classified and marked in accordance with directives on hazardous materials • Hazard statements <ul style="list-style-type: none"> ✓ Harmful if absorbed through the skin. ✓ Harmful if swallowed • Signal word – CAUTION • Precautionary statements <ul style="list-style-type: none"> ✓ Do not get in eyes, on skin or on clothing. ✓ Causes eye irritation. ✓ Avoid contact with eyes. ✓ Wash thoroughly with c soap and water after handling and before eating or smoking. ✓ Avoid inhalation of dust and contamination of food and feed. ✓ Remove and wash contaminated clothing before reuse • Other regulations: Listed /not listed within the following regulation <ul style="list-style-type: none"> ✓ TSCA (TOXIC SUBSTANCE CONTROL ACT) – not listed ✓ EU CLP Regulation (EC) No 1272/2008 - listed ✓ California Prop 65 Known Carcinogens – not listed ✓ UNEP Persistent Organic Pollutant (POP) – not listed ✓ UNEP Prior Informed Consent Chemical (PIC) – not listed ✓ WHO Obsolete Pesticide – not listed
16. Other Information		
16.1	Indication of changes	Section 1: Identification of the substance/mixture and of the company/undertaking Section 2: Hazard Identification - Changes in Classification and Labelling. Section 3: Composition /Information on Ingredients Section 5: Fire-fighting measures Section 6: Accidental Release measures Section 7: Handling and storage. Section 8: Exposure Controls/Personal protection. Section 9: Physical and Chemical properties. Section 10: Stability and Reactivity. Section 11: Toxicological Information. Section 12: Ecological Information. Section 14: Transport labeling Section 15: Regulatory Information
16.2	Abbreviations and acronyms	<ul style="list-style-type: none"> • OSHA: Occupational Safety and Health Administration • GHS: Globally harmonized system on classification and labelling • TWA: Time Weighted Average • STEL: Short Term Exposure Limit • PEL: Permissible Exposure Limits • ACGIH: American Conference of Governmental Industrial Hygienists • NIOSH: National Institute for Occupational Safety and Health • TLV: Threshold Limit Value • MARPOL: Marine pollution • IBC Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk • IARC: International Agency for Research on Cancer • NTP: National Toxicology Program • CAS: Chemical Abstracts Service (division of the American Chemical Society) • LC50: Lethal concentration, 50 percent • LD50: Lethal dose, 50 percent • IMDG: International Maritime Code for Dangerous Goods IATA: International Air Transport Association • IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA) ICAO: International Civil Aviation Organization • ICAO-TI: Technical Instructions by the "International Civil Aviation Organization"
16.3	Key literature references and sources for data	<ul style="list-style-type: none"> • http://www.sigmaaldrich.com/MSDS/MSDS/DisplayMSDSPage.do?country=IN&language=en&productNumber=34074&brand=SIAL&PageToGoToURL=http%3A%2F%2Fwww.sigmaaldrich.com%2Fcatalog%2Fsearch%3Fterm%3D100646-51-3%26interface%3DCAS%2520No.%26N%3D0%2B%26mode%3Dpartialmax%26lang%3Den%26region%3DIN%26focus%3Dproduct

		<ul style="list-style-type: none">• http://www.chemicalbook.com/CASEN_100646-51-3.htm• http://echa.europa.eu/search• http://www.lookchem.com/cas-100/100646-51-3.html• http://www.greenrivercn.com/sale-2803837-100646-51-3-quizalofop-p-ethyl-selective-herbicides-for-potatoes-sunflowers.html• http://pubchem.ncbi.nlm.nih.gov/compound/1617113
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Disclaimer: This product is a registered agricultural chemical and must therefore be used in accordance with the container label directions. The information above is believed to be accurate and represents the best information currently available to us. No representation, guarantee or warranties of any kind are made as to its accuracy, suitability for a particular application or results to be obtained from them. This SDS shall be used as a guide only. Users should make their own investigations to determine the suitability of the information for their particular purposes. Consult Sharda USA LLC for further information.