



CHEMSYNTH CORPORATION

(Exporter of chemical Raw materials)

B 802 Gundecha, LBS Marg, Kanjurmarg, Mumbai 400 078, India.

Tele: +91 22 2578 9174 fax: +91 22 2569 0837, Email info@chemsynth.co.in

Material safety data sheet

Triclocarban

1. Identification Product identifier Triclocarban Other means of identification Catalog number 1681800
Chemical name Urea, N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)-
Synonym(s) 3,4,4'-Trichlorocarbanilide
Recommended use Specified quality tests and assay use only. Recommended restrictions Not for use as a drug. Not for administration to humans or animals.
Manufacturer/Importer/Supplier/Distributor information Telephone RS Technical Services 301-816-8129
Rockville MD 20852-1790 US Company name U. S. Pharmacopeia Address Emergency phone number CHEMTREC within US & Canada 1-800-424-9300 CHEMTREC outside US & Canada +1 703-527-3887
Website E-mail RSTECH@usp.org www.usp.org 12601 Twinbrook Parkway
2. Hazard(s) identification Physical hazards Not classified. Health hazards Serious eye damage/eye irritation Category 2B OSHA hazard(s) Not classified. Label elements Hazard symbol No symbol. Signal word Warning Hazard statement Causes eye irritation. Precautionary statement Prevention Wash thoroughly after handling. Response If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Storage Not available. Disposal Not available. Hazard(s) not otherwise classified (HNOC)
3. Composition/information on ingredients Substance Hazardous components Chemical name Common name and synonyms CAS number % Triclocarban 3,4,4'-Trichlorocarbanilide 101-20-2 100
4. First-aid measures Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist. Skin contact Rinse skin with water/shower. Get medical attention if irritation develops and persists. Eye contact Rinse immediately

with plenty of water, also under the eyelids, for at least 15 minutes. Rinse cautiously with water for several minutes. Get medical attention if irritation develops or persists. Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately. 1 / 6 Material name: Triclocarban 7813 Version #: 02 Revision date: 03-21-2013 Issue date: 12-07-2012 USP SDS US Most important symptoms/effects, acute and delayed Irritation of eyes and mucous membranes. Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Administer activated charcoal as a slurry. (Poisindex). General information Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures Suitable extinguishing media Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials. Unsuitable extinguishing media None known. Specific hazards arising from the chemical No unusual fire or explosion hazards noted. Special protective equipment and precautions for firefighters Wear suitable protective equipment. Fire-fighting equipment/instructions As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing. Specific methods Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Wear appropriate personal protective equipment. Methods and materials for containment and cleaning up Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. For waste disposal, see section 13 of the SDS. Wash spill site.

7. Handling and storage Precautions for safe handling As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Use of a designated area is recommended for handling of potent materials. Conditions for safe storage, including any incompatibilities Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection Biological limit values No biological exposure limits noted for the ingredient(s). Exposure guidelines No exposure standards allocated. Appropriate engineering controls Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the

effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures. Individual protection measures, such as personal protective equipment Eye/face protection Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area. Skin protection Hand protection Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy. Other For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination. Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134). Thermal hazards Not available. General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties Appearance Powder. Physical state Solid. Form Powder. Odor Slight characteristic odor. Odor threshold Not available. pH Not available. Melting point/freezing point 491.4 - 492.8 °F (255.2 - 256 °C) Initial boiling point and boiling range Not available. Flash point Not available. Evaporation rate Not available. Flammability (solid, gas) Not applicable. Upper/lower flammability or explosive limits Flammability limit - lower (%) Not available. Flammability limit - upper (%) Not available. Explosive limit - lower (%) Not available. Explosive limit - upper (%) Not available. Vapor pressure < 0.000001 kPa at 25 °C Vapor density Not available. Relative density Not available. Solubility in water Moderately soluble. Partition coefficient (n-octanol/water) < 4.2 Auto-ignition temperature Not available. Decomposition temperature Not available. Viscosity Not available. Other information Chemical family Urea. Molecular formula C₁₃H₉Cl₃N₂O pH in aqueous solution Neutral. Solubility (other) Soluble in acetone and dimethylformamide.

10. Stability and reactivity Reactivity No reactivity hazards known. Chemical stability Material is stable under normal conditions. Possibility of hazardous reactions No dangerous reaction known under conditions of normal use. Conditions to avoid Heat. Incompatible materials Strong oxidizing agents. Hazardous decomposition products NO_x. Cl⁻. Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions. This material can decompose, in prolonged high temperatures, to form chloroanilines, which can cause methemoglobinemia..

11. Toxicological information Information on likely routes of exposure Ingestion Based on available data, the classification criteria are not met. Inhalation Due to lack of data the classification is not possible. 3 / 6 Material name: Triclocarban 7813 Version #: 02 Revision date: 03-21-2013 Issue date: 12-07-2012 USP SDS US Skin contact Based on available data, the classification criteria are not met. Eye contact Causes eye irritation. Symptoms related to the physical, chemical, and toxicological characteristics Not available. Acute toxicity Product Species Test Results Triclocarban (CAS 101-20-2) LD50 Rabbit Dermal >

10000 mg/kg LD50 Rat Oral > 2000 mg/kg Skin corrosion/irritation Based on available data, the classification criteria are not met. Serious eye damage/eye irritation Causes eye irritation. Local effects 0.25 % Irritancy test (suspension in corn oil) Result: Non-irritant. Species: Rabbit Organ: Skin Irritancy test (20 mg) Result: Irritant. Species: Rabbit Organ: Eye Severity: Slight. Respiratory sensitization Due to lack of data the classification is not possible. Skin sensitization Based on available data, the classification criteria are not met. Sensitization Magnusson/Kligmann (maximization test) Result: Non-sensitizer. Species: Guinea pig Organ: Skin Patch test (50 mg) Result: Non-sensitizer. Species: Human Organ: Skin Test Duration: 24 hours Germ cell mutagenicity Based on available data, the classification criteria are not met. Mutagenicity Ames test (S. typhimurium) Result: Negative. Chromosome aberration test in Chinese hamster ovaries Result: Negative. Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA. Based on available data, the classification criteria are not met. Dietary carcinogenicity study Result: No evidence of carcinogenicity. Species: Rat Test Duration: 2 years Reproductive toxicity Based on available data, the classification criteria are not met. Reproductivity 150 mg/kg/day Reproductivity study Result: No developmental or teratogenic effects. Species: Rat 250 mg/kg/day Reproductivity study Result: Maternal toxicity and miscarriage; no developmental effects. Species: Rabbit Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met. Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met. Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information Ecotoxicity Very toxic to aquatic life with long lasting effects. Product Species Test Results Triclocarban (CAS 101-20-2) Crustacea EC50 Daphnia 0.01 mg/l, 48 hours Aquatic Crustacea LC50 Northern quahog or hard clam 0.037 mg/l, 12 days (Mercenaria mercenaria) Fish LC50 Rainbow Trout 0.12 mg/l, 96 hours Persistence and degradability Not readily degradable. Bioaccumulative potential Not available. Mobility in soil Not available. Other adverse effects Not available.

13. Disposal considerations Disposal instructions This product, in its present state, when discarded or disposed of, is not a hazardous waste according to Federal regulations (40 CFR 261.4 (b)(4)). Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste. Local disposal regulations Not available. Hazardous waste code Not regulated. Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information DOT UN number UN3077 UN proper shipping name Environmentally hazardous substance, n.o.s. (Triclocarban) Transport hazard class(es) 9 Subsidiary class(es) Not available. Packing group III IATA UN number UN3077 UN proper shipping name Environmentally hazardous substance, n.o.s. (Triclocarban) Transport hazard class(es) 9 Subsidiary class(es) - Packaging group III Environmental hazards No Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information available. DOT; IATA

15. Regulatory information US federal regulations All components are on the U.S. EPA TSCA Inventory List. CERCLA/SARA Hazardous Substances - Not applicable. US Superfund Amendments and Reauthorization Act of 1986 (SARA) Hazard categories Immediate Hazard - No Delayed Hazard - No Fire Hazard - Yes Pressure Hazard - No Reactivity Hazard - No SARA 302 Extremely hazardous substance No SARA 311/312 Hazardous chemical No Other federal regulations Safe Drinking Water Act (SDWA) Not regulated. Food and Drug Administration (FDA) Not regulated. US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. International Inventories Country(s) or region Inventory name On inventory (yes/no)* Australia Australian Inventory of Chemical Substances (AICS) Yes Canada Domestic Substances List (DSL) Yes Canada Non-Domestic Substances List (NDSL) No China Inventory of Existing Chemical Substances in China (IECSC) Yes Europe European Inventory of Existing Commercial Chemical Substances (EINECS) Yes Europe European List of Notified Chemical Substances (ELINCS) No Japan Inventory of Existing and New Chemical Substances (ENCS) Yes Korea Existing Chemicals List (ECL) Yes New Zealand New Zealand Inventory Yes Philippines Philippine Inventory of Chemicals and Chemical Substances Yes (PICCS) United States & Puerto Rico Toxic Substances Control Act (TSCA) Inventory Yes *A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other information,. Disclaimer USP Reference Standards are sold for chemical test and assay purposes only, and NOT for human consumption. The information contained herein is applicable solely to the chemical substance when used as a USP Reference Standard and does not necessarily relate to any other use of the substance described, (i.e. at different concentrations, in drug dosage forms, or in bulk quantities). USP Reference Standards are intended for use by persons having technical skill and at their own discretion and risk. This information has been developed by USP staff from sources considered reliable but has not been independently verified by the USP. Therefore, the USP Convention cannot guarantee the accuracy of the information in these sources nor should the statements contained herein be considered an official expression. NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE is made with respect to the information contained herein