HUNTSMAN

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PRODUCT SAFETY SUMMARY:
DISPERSE RED 092

This Product Safety Summary is intended to provide a general description of certain Huntsman chemical substances and products containing the chemical substance(s). The information in this Summary is not intended to replace the information included on the Safety Data Sheet (SDS), Product Safety Label, and other safe use and handling literature for the chemical substance(s).

Chemical Identity:

Name	Other Identifiers
Disperse Red 092	TERASIL® Red

General Product Overview:

Disperse Red 092, a textile dye is sold by Huntsman for industrial downstream users only but may also be reformulated by downstream users into products used by professionals and end-use consumer. Disperse Red 092 has an outstanding wash as well as contact fastness and application properties. It also has properties such as wet fastness, excellent perspiration and water fastness, and excellent fastness to dry heat.

Applications and Uses:

Disperse Red 092 is used in textile and apparel treatment products for dyeing and printing. It also has an industrial application in manufacture of other substances (use of intermediates). Disperse Red 092 is also used by consumers in home dyeing products. It is suitable for dyeing all cellulosic fabrics by the cold pad batch process and all conventional continuous dyeing processes.

Physical and Chemical Properties:

Disperse Red 092 is a blue odorless powder.
Certain physical/chemical properties specific to Disperse Red 092 are summarized below:

Physical/Chemical Property	Result
Molecular Weight	496.5 g/mol
Melting point	>147 °C (decomposition temperature 290 °C)
Boiling point	no boiling point detected as decomposition started at approx. 290 °C

Physical/Chemical Property	Result
Partition coefficient (Log Kow)	1.88 @ 20 °C
Vapour Pressure	3.0 x 10^{-13} Pa at 25 °C
Water Solubility	8.1 mg/L
Flammability	Non-flammable
Explosiveness	Non-explosive
Oxidizing property	Non-oxidizing (does not cause or intensify fire or explosion)

Additional physical and chemical property information is available on the product Safety Data Sheet (SDS), which can be requested at SDS@huntsman.com.

Human Health Information:

The probability of experiencing health effects associated with exposure to Disperse Red 092 is controlled, provided the recommendations stated in the Safety Data Sheet are enforced. Adverse health effects are subject to dose level, route, and duration of exposure.

Different regulatory classification criteria apply in different geographic regions. These different criteria may result in different human health regulatory classifications for the same product in different geographic regions. Specific regulatory classification information is contained in the Safety Data Sheet for each product in use in a specific geographic region. The acute and chronic health effects information set forth below is based on US GHS.

All instructions found on the packaging should be followed. Disperse Red 092 is safe when used appropriately. The uses identified for the substance have been assessed as safe under several regulatory programs.

Summary- Toxicological data:

Effect Assessment	Result
Acute Toxicity	Not toxic after a single ingestion
Skin Irritation	Not irritating to the skin
Eye Irritation	Not irritating to the eye
Sensitization	Not sensitizing to the skin
Genotoxicity	Does not cause genetic defect

Effect Assessment	Result
Repeated dose toxicity	May cause damage to organs through prolonged or repeated exposure
Toxicity for reproduction	Does not cause effects on fertility and/or unborn child

Disperse Red 092 is classified under the US GHS for Hazard Communication. More information can be obtained in the Safety Data Sheet.

Acute Health Effects:

Likelihood/frequency of oral, skin and inhalation exposures are low, if used under strictly recommended conditions and closed process. Low vapor pressure of the substance is considered to have low volatility which limits inhalation exposure of Disperse Red 092. The low water solubility (8.1 mg/L), indicates that the possibility of the substance getting absorbed dermally will be low.

The oral exposure is not relevant for this scenario as this product is not intended for oral intake. Animal studies in rats have demonstrated low acute toxicity of Disperse Red 092 by ingestion.

Chronic Health Effects:

No adverse effects with repeated exposure can be anticipated in humans, however, repeated oral ingestion in animals with large doses may cause damage to hematopoietic system.

No effects on reproduction or fertility were observed in the rats exposed orally to Disperse Red 092. Extensive experimental genetic toxicity studies have been conducted, which indicates that Disperse Red 092 appears to have no genetic defects.

Summary: Ecotoxicological Data:

Effect Assessment	Result
Short term toxicity to fish	Not harmful to fish
Short term toxicity to aquatic invertebrates	Not harmful to daphnids
Toxicity to aquatic plants	Not harmful to *Lemna gibba*
Toxicity to aquatic microorganisms	Not harmful to bacteria

Disperse Red 092 was found to pose no hazard to aquatic species including fish, daphnids, aquatic plants and microorganisms.

Summary: Environmental fate and pathway:

Effect Assessment	Result
Abiotic Degradation - Hydrolysis as a function of pH	Hydrolytically stable
Ready biodegradability	Non-biodegradable
Adsorption on soil and sediment	No adsorption potential

Disperse Red 092 is not considered readily biodegradable but is hydrolytically stable. It is also considered to have no adsorption potential on soil and sediment.

The closed process in which the product is used does not lead to direct emissions to soil and air. Procedural and/or control technologies are used to minimize emissions and potential exposure during cleaning and maintenance activities.

Potential Occupational Exposure:

At Huntsman, Disperse Red 092 is manufactured in closed systems. During normal operating conditions, occupational exposure to Disperse Red 092 is not expected in the manufacturing process. Procedural and/or control technologies are used to minimize exposure during sampling, cleaning, maintenance, or in more open handling systems. Appropriate engineering controls (such as ventilation) and personal protective equipment should be used in accordance with the exposure guidelines and workplace practices identified in the Safety Data Sheet.

Potential Consumer Exposure:

Consumer:

Consumer exposure can result from handling of products that contain Disperse Red 092 such as textiles or dyes. Use of these products are safe if the instructions provided by the manufacturer of the respective product are followed carefully.

There are no consumer uses for Disperse Red 092, although some dermal exposure from the service life is expected. Disperse Red 092, being a disperse dye, is chemically bound to the textile fibers, while the residual unreacted dye in the fibers is minimized by efficient washing following the dyeing process and residual concentrations are considered being very low. This ensures a very low residual release during the service life of articles. Hence, oral and inhalation exposure are considered not relevant, while dermal exposure can be considered as negligible. Further, it is recommended to keep Disperse Red 092 away from the reach of children and avoid direct contact.

Workplace exposure:

Workers working with Disperse Red 092 in industrial operations could be exposed during maintenance, sampling, testing, or other procedures. Workplace exposure is controlled and minimized by use of proper occupational handling procedures and personal protection and safety equipment. Potential routes of worker exposure to Disperse Red 092 are through dermal contact and to a minor extent, through inhalation in a Disperse Red 092 manufacturing facility or in the various industrial facilities that use Disperse Red 092. Ingestion is not an anticipated route of exposure. Worker exposure can occur in industrial facilities where the substance is produced or formulated into end-use products or used as textile dyes. Within this assessment, both industrial workers and trained professionals are evaluated. The exposure has been assessed as safe if the substance is used as directed on the label, avoiding splashes onto skin and into eyes. Huntsman follows and recommends customers to follow workplace exposure guidelines through a variety of industrial hygiene and ventilation measures. The substance has been assessed as safe for professional and industrial use, when the provisions identified in the SDS are followed carefully.

Likelihood/frequency of skin and inhalation exposure is low, due to its usage under strictly controlled conditions and closed process. Also, no combined exposure of workers is expected as there are no consumer uses for Disperse Red 092, while exposure during service life is negligible as it is chemically bound to the textile fibers and residual release is also minimized.

Environmental exposure:

Disperse Red 092 is not readily biodegradable, its hydrolytically stable and not harmful to aquatic organisms. Conclusively, all identified uses are safe for the environment based on the scientific facts and when carried out in compliance with recommended risk management measures and applicable regulations.

EU REACH Status:

Disperse Red 092 has been registered under the European REACH Regulation EC/1907/2006 and the substance was found to be safe for the uses identified.

Regulatory Information/Classification and Labeling:

Regulations exist that govern manufacture, sales, transportation, use and disposal of Disperse Red 092. These regulations may vary by city, state, country or geographic region. Information can be found by consulting the relevant SDS.

Disperse Red 092 was registered under REACH Regulation in the EU and listed on Canadian Domestic Substances List (DSL), Toxic Substances Control Act (TSCA) Inventory and U.S. EPA Substance Registry Services.

Under the US GHS for Hazard Communication, substances are classified according to their physical, health, and environmental hazards. The hazards are communicated via specific labels and the Safety Data Sheets. US GHS attempts to standardize hazard communication so that the

intended audience (workers, consumers, transport workers, and emergency responders) can better understand the hazards of the chemicals in use.

The hazard statements and symbols presented here refer to the hazard properties of the concentrated substance and are meant to provide a brief overview of the substance's labeling. It is not intended to be comprehensive or to replace information found in the Safety Data Sheet.

Labeling according to US GHS:

Signal Word
Warning

GHS Classification	
STOT RE	Exp. 2

Hazard Statements	
H373	May cause damage to hematopoietic system through prolonged or repeated exposure by oral route

Additional Information:

Information on registered substances is available on the European Chemicals Agency (ECHA) website at https://echa.europa.eu.

References:

Information on registered substance (ECHA)
https://echa.europa.eu/registration-dossier/-/registered-dossier/19347.

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IN ALL CASES, IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE THE APPLICABILITY OF SUCH INFORMATION AND RECOMMENDATIONS AND THE SUITABILITY OF ANY PRODUCT FOR ITS OWN PARTICULAR PURPOSE.

THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity, and behavior of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity, and behavior should be determined by the user and made known to handlers, processors, and end users.

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Contact:

For further information on this substance or GPS safety summaries in general, please contact: pehs_te@huntsman.com.