



INDOFIL INDUSTRIELS LIMITED
 KOLSHET, OFF SWAMI VIVEKANAND ROAD,
 AZAD NAGAR, SANDOZ BAUG P.O.,
 THANE – 400 607. MAHARASHTRA (INDIA)
TEL. NO.: 00-91-22- 67999100
FAX NO.: 00-91-22-2589 83 57 / 59

2-R&D-MSDS- FP- 426

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT IDENTIFICATION		
Chemical Name	Dodine 65% WP	Company Identification INDOFIL INDUSTRIES LIMITED KOLSHET, OFF SWAMI VIVEKANAND ROAD, AZAD NAGAR, SANDOZ BAUG P.O., THANE – 400 607. MAHARASHTRA (INDIA) TEL. NO: 00-91-22-67999100 FAX NO: 00-91-22-2589 83 57 / 59
Trade Name	Mukaam	
Synonyms	Dodine	GROUP: Aliphatic nitrogen
IUPAC	N-dodecylguanidine acetate	CLASS: Fungicide
CAS Number	2439-10-3	
Formula	C ₁₅ H ₃₃ N ₃ O ₂	

SECTION 2. COMPOSITION / INFORMATION OF INGREDIENTS

COMPONENT NAME	CAS REGISTRY NO.	CONCENTRATION
Dodine	2439-10-3	65%
Other ingredients	-----	35%

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state : Powder
 Colour : White Powder
 Odor : Pungent.

IMMEDIATE HEALTH EFFECTS

Eye contact	May cause severe eye irritation.
Skin contact	Prolonged or repeated skin contact may cause irritation.
Ingestion	Swallowing a small quantity of this material will result in serious health hazard
Inhalation	High concentrations product is irritant to the nose, throat respiratory tract.
Emergency Treatment	Move subject to fresh air. Apply artificial respiration and oxygen, if necessary, seek medical aid immediately

DELAYED OR OTHER HEALTH EFFECTS

Target organs	-----
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An "X" in the box adjacent to the hazard title indicates OSHA Hazard classification. If no "X" is present, the product does not exhibit the hazard as defined in the OSHA Hazard Communication standard (29 CFR 1910.1200)

OSHA Health Hazard Classification	OSHA Physical Hazard Classification
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Toxic <input type="checkbox"/>	Highly Toxic <input type="checkbox"/>	Flammable <input type="checkbox"/>	Oxidizer <input type="checkbox"/>
Irritant <input type="checkbox"/>	Sensitizer <input type="checkbox"/>	Combustible <input type="checkbox"/>	
Corrosive <input type="checkbox"/>	Carcinogenic <input type="checkbox"/>	Explosive <input type="checkbox"/>	Organic Peroxide <input type="checkbox"/>
		Pyrophoric <input type="checkbox"/>	unstable <input type="checkbox"/>
		Organic peroxide <input type="checkbox"/>	water-reactive <input type="checkbox"/>

SECTION 4 : FIRST AID MEASURES

Eye	Flush eyes with plenty of water for at least 20 minutes and seek medical advice.
Skin	Remove contaminated clothes, wash skin with soap and water. seek medical attention if irritating develops.
Ingestion	If swallowed, rinse mouth with water. Do not induced vomiting. seek medical advice.
Inhalation	Assure fresh air breathing. if breathing is difficult, give oxygen. if not breathing, give artificial respiratory, preferable mouth to mouth. obtained medical attention if breathing difficulty persist.
Notes to physician	Antidote none known.

SECTION 5 : FIRE FIGHTING MEASURES

NFPA Flammability Classification	-----
NFPA RATINGS	Health: 2 Flammability :0 Reactivity: 0
OSHA classification	
Flash point	Not Applicable
Flammability (Explosive limits)	No data
Auto ignition Temperature	No data
Hazardous Combustion products	Carbon monoxide, carbon dioxide, nitrogen oxide.

Extinguishing Media	Dry chemical powder, CO ₂ , Water, Water Spray
Protection of Fire Fighters	NIOSH/MSHA-approved respirator equipped with pesticide cartridges, if required
Special Properties	Use Water spray to cool container. Wear self contained breathing apparatus.
Unusual Hazards	Fire produces toxic and flammable products. Hydrogen sulfide, CS ₂ , Oxides of Sulfur, Nitrogen and Carbon.
SECTION 6 : ACCIDENTAL RELEASE MEASURES	
Protective Measures	Eliminate all sources of ignition in the vicinity of the spill. If this material is released into the work area, evacuate the area immediately.
Spill Management	Scoop or shovel solid material into a suitable container. Keep dust to minimum. Flush cleaned area with water to chemical sewers. Keep spills and cleaning runoffs of municipal sewers and open bodies of water.

SECTION 7 : HANDLING AND STORAGE

Handling	Keep away from food, drink and animal feeding stuffs. Ensure prompt removal from eyes, skin and clothing. wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when laving work.
Storage	Keep locked up. store in dry, well-ventilated area. keep container cloed when not in use

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls	Provide exhaust ventilation or other engineering controls. An emergency eye wash station and safety shower should be located near the work-station.
Personal Protective Equipment	<p>Eye Protection: Wear eye protection such as safety glasses, chemical goggles, or face shields if engineering controls or work practices are not adequate to prevent eye contact. Contact lenses should not be worn when working with this chemical</p> <p>Hand protection: Avoid skin contact .Use gloves. Wash hands with plenty of mild soap and water before eating, drinking, use of toilet facilities or leaving work.</p> <p>Body protection: Avoid skin contact. Wear long-sleeved fire-retardant garments. Additional chemical-resistant protective gear may be required. This may include an apron, boots and additional facial protection.</p> <p>Respiratory Protection: Dust/mist filtering respirator or a NIOSH approved respirator.</p> <p>Work practices: users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash outside of gloves before removing. As soon as possible wash thoroughly and change into clean clothing. Deluge safety shower and eye wash station should be located in work area</p>

Occupational exposure limits

Component	Limit		

Dodine	ACGIH	Not determined (threshold limit value)	
Dodine	OSHA	Not determined (permissible exposure limit)	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid	Appearance	White Powder
Odor	Pungent	pH (1%)	5 to 9
Specific gravity (Water = 1)	NA	Solubility in water @	Forms suspension in water
Vapor pressure @ (mm Hg)	NA	Vapor density (Air=1)	NA
Viscosity	--	Boiling point	NA
Melting point (°C)	136°C for dodine		

SECTION 10: STABILITY AND REACTIVITY

Chemical stability	Stable.
Conditions to Avoid	Keep away from heat and ignition sources. Prolonged exposure to temperatures may result in some decomposition of dodine. Avoid moisture in storage.
Hazardous Decomposition Products	Thermal decomposition products are toxic and may include oxides of carbon and nitrogen, and irritating gases
Hazardous Polymerization	Data not available.

SECTION 11: TOXICOLOGICAL INFORMATION

(Assessment largely or completely based on data for Dodine Active Substance)

Acute Oral toxicity LD ₅₀	>1000 mg/kg (male and female rat)
Acute Percutaneous toxicity LD ₅₀	>6000 mg/kg (rats) and 1500 mg/kg (rabbit)
Acute Inhalation toxicity LC ₅₀	0.47 mg/l for male rat; 0.44 mg/l for female rat
Skin irritation (Rabbit) : Irritant	

SECTION 12: ECOLOGICAL INFORMATION

(Assessment largely or completely based on data for Dodine Active Substance)

Eco-toxicity:	
Birds	
Acute Oral LD ₅₀	1142 for mallard ducks ; 788 mg/kg for Japanese quail
Fish	
LC ₅₀	For harlequin fish (48 h) 0.53 mg/l; (96 h) 0.6 mg/l
Daphnia EC ₅₀	(48 h) 0.13 mg/l
Algae EC ₅₀	For <i>Selenastrum capricornutum</i> 5.1 µg/l
Bees LD ₅₀	>200 mg/bee
Environmental fate	Animals: In rats, 95% of the applied dose is eliminated in urine and faeces within 8 days; 74% of excreted material is unchanged dodine; metabolites include creatine and guanidine derivatives.

	<p>Plants: In plants, dodine is converted to creatine by the action of a methyltransferase and simultaneous oxidative cleavage of the doecyl moiety.</p> <p>Soil/Environment: Stable in anaerobic aquatic environment.</p>
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SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL PROCEDURES: Waste disposal should be in accordance with existing federal, state and local environmental regulations. Dispose of empty, used containers in approved incineration plant in approved land filling area or in a disposal pit away from desirable plants and their roots and water courses. On-site disposal of undiluted product is unacceptable.

SECTION 14 : TRANSPORT INFORMATION

UN No.	3077
Shipping Name	Environmentally Hazardous Substance, solid, n.o.s. (Dodine)
Hazard class	9
Packing Group	III
Marine pollutant	Yes

SECTION 15: REGULATORY INFORMATION

TSCA Inventory	No data
SARA 311/312 Hazard Identification	No data
SARA 302/304 Emergency planning and notification	No data
SARA 313 Toxic chemical notification and Release reporting	No data
CERCLA	No data
Clean air act (CAA)	Not applicable

SECTION 16: OTHER INFORMATION

NFPA RATINGS	Health : 2	Flammability :0	Reactivity :0
HMIS RATINGS	Health : 2	Flammability :0	Reactivity :0
	0 = Least 1= slight 2= Moderate 3= High 4=Extreme		

ABBREVIATIONS

STEL	Short term exposure limit
ACGIH	American conference of Government Industrial Hygienists
NIOSH	National institute of safety and health
SARA	Super fund Amendments and Reauthorization Act
TWA	Time weighted average
OSHA	Occupational safety and health
NFPA	National Fire protection agency
HMIS	Hazardous Materials information system
RCRA	Resource conservation Recovery act
TSCA	Toxic substance Control Act

WHMIS	Work place Hazardous Materials information system
IRAC	International Agency for Research on Cancer

MANUFACTURE'S / SUPPLIER'S DATA

Name of Firm : INDOFIL INDUSTRIES LIMITED			
Mailing Address : Kolshet, Off Swami Vivekanand Road, Azad nagar, Sandoz Baug P.O. Thane – 400 607.			
Telephone 67999100	Telex		
Fax 589 8357	Telegraphic Code		
Local Bodies Involved	Collector of Thane		

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