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| **Material Safety Data Sheet**  **NODULAR** | |
| **Manufacturer's Name :** Indore Biotech Inputs and Research Pvt. Ltd. | |
| **Manufacturer's Address :**   "Arundhati", 49-C, Indrapuri Colony, Near  Bhanwarkuan Square, **INDORE** - 452001 (**M.P.**)  India | |
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1. **Product Information**

Product Name : **NODULAR**

Product Code : **NODULAR**

Family / Group : Microbial BioFertilizer

Chemical Formula : Mixture

Other Designations : Aqua Based formulation containing ***Rhizobium sps***

1. **Composition/Information on Ingredients**

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| **Components** | **Composition (%) W/W** |
| *Rhizobium sps (vegetative cells))* | 1% , 1 X 10 ^ 8 CFU / ml |
| Glycerol | 25% |
| Carrier (Aqua based) | 65% |

Ingredients not precisely identified are proprietary and/or non-hazardous.

1. **Hazards Identification**

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| |  | | --- | | **Emergency Overview**  The product is in form of black granules with a characteristic fermentation odour which is intended to be used for plant nutrition supplementation. Organisms used are non-pathogenic, but can cause infection when in contact with open wounds. These organisms are susceptible to many commonly used antibiotics. There is no specific antidote for any form of irritation observed. Treat symptomatically. Immediately seek medical attention. |   **Potential Health Effects:**  **Routes(s) of Entry : Eye , Skin , Oral , Inhalation**  Human effects and symptoms : Causes irritation of eyes , skin or  of exposure respiratory tract  Acute eye contact : Causes irritation  Chronic eye contact : Chronic exposure Is not likely from  normal use  Acute skin contact : May cause irritation  Chronic ingestion : Chronic exposure Is not likely from  normal use  Medical conditions generally : Not known  aggravated by exposure  **4. First Aid Measures**  **If poisoning is suspected, consult a physician immediately/ visit the nearest hospital / nearest Poison control centre. The concerned examiner should be informed the complete product name and details and amount of exposure. Describe the symptoms and follow the advice given.**  **First Aid for Eyes**  Immediately flush eyes with water for 20 minutes. Hold the eye lids apart to rinse the entire surface of eyes and lids. No medicating agents should be applied except on the advice of physician.  **First Aid for Skin**  Wash skin with soap and water, including hair and under finger nails. No medicating agents should be applied except on the advice of physician. Remove contaminated clothing and footwear.  **First Aid for Inhalation**  Move victim from contaminated area to fresh air. Apply artificial respiration , if necessary  **First Aid for Ingestion**  The product is not harmful if ingested. If any irritation is observed give plenty of water to drink and consult a physician.   |  | | --- | |  |   **5. Fire fighting measures**  **Flash Point:** Not applicable  **Flammability Limits:** Not flammable  **Autoignition temp:** Not applicable  **Fire Extinguishing Media:** Water spray, carbon dioxide, dry chemical, foam  **Special Fire-Fighting Information:** Wear full protective clothing and self contained breathing apparatus. Evacuate non essential personnel from the area to prevent human exposure to fire, smoke , fumes or products of combustion. Use of contaminated buildings, area and equipment has to be avoided until decontaminated.  **Unusual Fire and Explosion Hazards:** None  **6. Accidental Release Measures**    **Safety gear :Wear chemical safety glasses with side shields or chemical proof goggles, rubber gloves , rubber boots , long sleeved shirt , long pants, head cap , NIOSH approved dust or pesticide respirator with a dust filter.**  **Spills: Sweep the area keeping the dust to a minimum and place an approved chemical container. Wash the spill area with water containing a strong detergent, absorb with absorbent material. Seal the container and handle in an approved manner.**  **7.. Handling and Storage**  **Storage Temperature : Room temperature ( Not more than 40 degree Celsius )**  **Storage requirements : Store the material in a well ventilated, clean, cool and dry**  **place out of reach of children and domestic animals. Keep away from direct sunlight.** Keep containers tightly closed when  not in use. Do not store in metallic containers. **Do not store**  **along with chemical pesticides**    **Shelf Life : Use before expiry date printed on label**  **Special sensitivity : None**  **Handling precautions : Follow normal hygienic and housekeeping standards for**  **agricultural products.**    **8. Exposure Controls/ Personal Protection**  Oral Protection Requirements : Avoid eating, drinking, tobacco usage and cosmetic  application in areas where there is a potential for exposure to the material. Always wash thoroughly after handling the product.  Eye protection equipments : To avoid eye contact, wear safety goggles.    Skin protection requirements : To avoid skin contact, wear rubber gloves, rubber boots,  long-sleeved shirt, long pants, head cap.  Respiratory / Ventilation : To avoid breathing dust, use adequate ventilation and  requirements wear a NIOSH-approved dust or pesticide respirator with a  dust filter.  **9. Physical and Chemical Properties**     * **Physical State : Liquid** * **Colour : Creamish tinge** * **Specific Gravity : Not applicable** * **Bulk density : Specified in Certificate of analysis** * **Odour : Characteristic fermentation odour** * **Miscibilty : Water miscible** * **pH : Specified in Certificate of analysis** * **Stability : Stable at normal storage conditions** * **Corrosion : Nil** * **Flash point : Not applicable** * **% Volatile volume : Not determined** * **Vapour pressure : Not determined** * **Vapour density : Not determined** * **Melting Point : Not determined** * **Boiling Point : Not determined** * **Freezing Point : Not determined** * **Evaporation Rate : Not determined**   **10. Stability and Reactivity**   * **Stability:** Product is stable. * **Hazardous Polymerization:** Will not occur. * **Hazardous Decomposition Products: None** * **Decomposition : Easily bio-degradable** * **Incompatibility:** **Strong acids or alkali compounds may inactivate biological cultures as well as strong**   **oxidising agents, disinfectants and biocides.. Chemical pesticides will inactivate the active ingredient completely**.   * **Conditions to Avoid: Heat, flames, ignition sources and incompatibles.** **Excessive temperature variations, below 0°C or above 40 °C.**   **11. Toxicological Information**  Toxicological studies is not available  **A Note**  Prolonged contact with eyes, skin and respiratory tract may cause irritation. .The product is formulated using microbe specially selected from the natural environment and that are known to be nonpathogenic  to humans, animals or plants. It is advised to cover open wounds when in use.  **12**. **Ecological Information**   * **Totally bio-degradable in nature** * **Accumulation: Not anticipated to bioaccumulate** * **Do not apply on water bodies as it maybe toxic to aquatic life.** * The product contains non –pathogenic, non-hazardous and non-toxic, naturally occurring constituents. * Other adverse effects: There is no ozone depletion, photochemical ozone creation or global warming potential.   **13.. Disposal Considerations**  Do not reuse product packing materials and residues. Dispose the product packing materials and residues according to local state and federal health and environmental regulations.  Destroy used containers and bury them 18 inches below the soil in non-crop land away from habitation and underground water course.  Dispose empty containers surplus material and washings from spray equipments in a safe manner so as to prevent environmental or water pollution, or contamination of food and animal feed.  Never use the empty containers for storing food or water  **14. Transportation Information**   * **Transportation Data : The product is not regarded as hazardous material**   **for all modes of transportation**   * **Hazard Class : Not applicable** * **ID NO : Not applicable**   **15. Regulatory Information**  **TSCA:** Not applicable  **CERCLA Reportable Quantity:** Not applicable  **SARA TITLE III Section 313 :** Not applicable  **OSHA Hazard Classification**: Not applicable  **WHMIS/ Controlled products regulation:** Not applicable.  **Clean Air Act:** This formula does not contain any hazardous air pollutants  **Clean Water Act:** None of the chemicals in this product are listed as hazardous, toxic or priority pollutants.  **State Right-to-Know Lists:** Not applicable  **Exposure Limits**: Not applicable  **16. Other Information**  Indore Biotech Inputs and Research Pvt. Ltd.provides the information contained herein in good faith, in compliance with the Occupational Safety and Health Act of 1970,.To the best of our knowledge, the information contained herein is accurate. However Indore Biotech Inputs and Research Pvt. Ltd.does not assume any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All material may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards, which exist.  ***This product is for agricultural use only.*** |

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| A Note   * 1. NIOSH :The National Institute for Occupational Safety and Health   2. WHMS : Workplace Hazardous Materials Information   3. TSCA : Toxic substances Control Act   4. CERCLA : Comprehensive Environmental Response, Compensation, and Liability Ac   5. SARA : Superfund Amendments and Reauthorization Act   6. RCRA : Resource Conservation and Recovery Act of USA   7. MSDS : Material Safety Data Sheet   8. CPR : Controlled Products Regulation |