

VVF (India) Limited

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MATERIAL SAFETY DATA SHEET

| Product Name: Vegator 1210 Version: 1.04 Date: Sept 25, 2012 | Product Name: Vegare | ol [®] 1216 | Version: 1.04 | Date: Sept 25, 2012 |
|--|----------------------|----------------------|---------------|---------------------|
|--|----------------------|----------------------|---------------|---------------------|

| 1. CHEMICAL PRODUCT IDENTIFICATION | | |
|------------------------------------|---|--|
| 1.1 Product Name | Vegarol® 1216 | |
| 1.2 Common Chemical Name | Blend of Lauryl Myristyl alcohol, cetyl alcohol, Blend of | |
| | N-dodecanol, tetra decanol and 1-hexa decanol, Fatty | |
| | Alcohol C12-16 | |
| 1.3 Product Code (Supplier) | Vegarol® 1216 | |

| 2. COMPOSITION / INFORMATION ON INGREDIENTS | | |
|---|---|--|
| 2.1 Chemical Name | Blend of 1-dodecanol (Lauryl Alcohol), 1-Tetrea decanol | |
| | (Myristyl Alcohol) and 1-Hexadecanol (Cetyl Alcohol) | |
| 2.2 % Compound | 100 | |
| 2.3 CAS Number | 68855-56-1 | |
| 2.4 EINECS Number | 272-490-6 | |

| 3. HAZARD IDENTIFICATION | | |
|--|--|--|
| 3.1 Environmental Hazards | None identified | |
| 3.2 Human Health Hazards, Effects, and Symptoms: | | |
| 3.3 Ingestion | May cause slight irritation to gastrointestinal tract | |
| 3.4 Inhalation | No harmful effect expected at ambient temperature. Mist or | |
| | vapours of the product may cause irritation to the pulmonary | |
| | tract | |
| 3.5 Skin Contact | Causes slight irritation | |
| 3.6 Eye Contact | Causes mild transient irritation | |

| 4. FIRST AID MI | EASURES |
|------------------|--|
| 4.1 Ingestion | Consult a doctor immediately. Drink plenty of water. Do not induce vomiting. However, if the person is unconscious, do not provide any type of ingestion |
| 4.2 Inhalation | Remove to fresh air immediately. In case of breathing difficulty try artificial respiration. Get medical attention as soon as possible |
| 4.3 Skin Contact | Wash material off the skin with plenty of soap and water. If redness or itching persists, seek medical attention |
| 4.4 Eye Contact | Wash eyes with water for at least 15 minutes. If redness or itching persists, seek medical attention |

| 5. FIRE FIGHTING MEASURES | |
|---------------------------|---|
| 5.1 Extinguishing Media | |
| a. Suitable | Carbon dioxide, dry chemical, water fog, foam |
| | Carbon dioxide or foam |
| b. Not Suitable | Water |



| 5. FIRE FIGHTING MEASURES | |
|--------------------------------------|--|
| c.Special Fire Fighting Procedures | Wear self-contained breathing apparatus and protective clothing to avoid direct contact with eyes and skin. In case of high temperature or fire, use a water jet to cool the tank containing the product |
| 5.2 Unusual Fire / Explosion Hazards | None |
| 5.3 Hazardous Thermal Decomposition | On decomposition, the product releases Carbon dioxide, Carbon monoxide, hydrocarbons, soot, aldehydes and ketones |
| 5.4 Protection for Fire Fighters | Self-contained breathing apparatus, protective clothing, a face mask and rubber boots |

| 6. ACCIDENTAL RELEASE MEASURES | | |
|--------------------------------|--|--|
| 6.1 Personal Precautions | No particular precautions. Observe all Standard Industry | |
| | Measures | |
| 6.2 Environmental Precautions | In case of spillage, cover the spilt amount with sand or | |
| | soil to absorb the product. Then, collect the sand or soil | |
| | with the product absorbed into a suitable container and | |
| | dispose. Prevent entry of product into drains and ground | |
| | water | |
| 6.3 Clean Up Method | Cover the product with dry earth or sand so that it may be | |
| | absorbed. Then, transfer into a container for disposal. | |
| | Flush affected area with water | |

| 7. HANDLING AND STORAGE | |
|---------------------------------|--|
| 7.1 Handling | Follow good hygiene and safety procedures. Avoid |
| | any direct contact with the product. Wash hands with |
| | soap and water after handling the product. Keep away |
| | from heat, strong acids and oxidising agents |
| 7.2 Storage | Store in sealed containers in a cool and dry place. |
| | Away from source of heat. |
| 7.3 Suitable Packing Materials | HDPE carbuoys, stainless steel tanks, Zink coated |
| | tanks or lacquer lined MS drums |
| 7.4 Unsuitable Packing Material | Unlined MS drums |

| 8. EXPOSURE CONTROLS / PERSONAL PROTECTION | | |
|--|---|--|
| 8.1 Respiratory System Protection | No protection required when adequate ventilation is | |
| | available at room temperature. In presence of mist or | |
| | vapour use self-contained NIOSH/MSHA approved | |
| | respirator | |
| 8.2 Skin and Body Protection | Uniform, apron and rubber boots | |
| 8.3 Hand Protection | Rubber gloves | |
| 8.4 Eye Protection | Safety goggles and a face mask | |

| 9. PHYSICAL AND CHEMICAL PROPERTIES | | |
|-------------------------------------|------------------------------------|--|
| 9.1 Physical State | Liquid above 25 ^o C | |
| 9.2 Colour | Colourless | |
| 9.3 Odour | Characteristic fatty alcohol odour | |



| 9. PHYSICAL AND CHEMICAL PROPERTIES | | |
|-------------------------------------|--|--|
| 9.4 Boiling Range | 255 to 305 ⁰ C | |
| 9.5 Melting Range | 18 to 25 ⁰ C | |
| 9.6 Solubility in Water | Insoluble in water | |
| 9.7 Density, Gm/ml | $0.8203 \text{ at } 40^{\circ}\text{C}$ | |
| 9.7 Solubility in Oil and Solvents | Not available | |
| 9.8 Vapour Density (Air = 1) | Not available | |
| 9.9 Vapour Pressure, mm of Hg | < 10 mm, at 22^{0} C | |
| 9.10 Flash Point | Approximately 137 ^o C, PMCC | |
| 9.11 Auto Ignition Temperature | Not available | |
| 9.12 Lower Explosion Limit | Not available | |
| 9.13 Upper Explosion Limit | Not available | |
| 9.14. Average Molecular Weight | 193 – 200 | |
| 9.15. Viscosity | $\sim 10 \text{ mPa.s at } 38^{\circ}\text{C}$ | |

| 10 STABILITY AND REACTIVITY | | | |
|--|--|--|--|
| 10.1 Chemical Stability | Stable under normal operational conditions | | |
| 10.2 Conditions to Avoid | Sources of heat, ignition and flame | | |
| 10.3 Materials to Avoid | Strong acids and oxidising agents | | |
| 10.4 Hazardous Polymerisation Products | None | | |
| 10.5 Hazardous Decomposition Products | Carbon monoxide and carbon dioxide | | |

| 11. TOXICOLOGICAL INFORMATION | | |
|-------------------------------|--|--|
| 11.1 Acute Toxicity: | | |
| 11.1.1 Oral (LD50) (Rat) | > 20.5 g/kg | |
| 11.1.2 Dermal (LD50) (Rabbit) | Not available | |
| 11.1.3 Inhalation (LC50) | Not available | |
| 11.2 Skin Irritation | No irritation in human beings observed in repeated | |
| | insult test done using undiluted product | |
| 11.3 Eye Irritation | Mild transient irritation. Mild irritation observed in | |
| | rabbits at 500 mg dosage level of undiluted product | |
| 11.4 Sensitisation | Not available | |
| 11.5 Chronic Toxicity | Not available | |
| 11.6 Carcinogenicity | Not available | |

| 12. ECOLOGICAL INFORMATION | | |
|----------------------------|---|--|
| 12.1 Comment | This product is very easily biodegradable (90%) and | |
| | does not cause difficulties in waste water treatment | |
| | plants. Since it is insoluble in water and lighter than | |
| | water, large amounts of contamination can be | |
| | separated using standard oils and fats separators. | |
| 12.2 Eco-Toxicity | Data not available | |

| 13 DISPOSAL CONSIDERATIONS | |
|----------------------------|--|
| 13.1 Methods of Disposal | Disposal methods should be in accordance with local, |
| | federal and state environmental regulations |
| 14.TRANSPORT INFORMATION | |



| 14.1 UN Number | 3082 | |
|-------------------------------------|--|--|
| 14.2 Land Road / Railway | | |
| 14.21 ADR/RID Class | Chemicals N. O. S. (non regulated) | |
| 14.22 ADR/RID Item Number | Chemicals N. O. S. (non regulated) | |
| 14.3 Inland Waterways | | |
| 14.31 ADNR Class | Chemicals N. O. S. (non regulated | |
| 14.4 Sea | | |
| 14.41 IMDG Class | Chemicals N. O. S. (non regulated) | |
| 14.42 IMDG Page Number | 2 IMDG Page Number Chemicals N. O. S. (non regulated) | |
| 14.5 Air | | |
| 14.51 IATA-DGR Class | Chemicals N. O. S. (non regulated) | |
| 14.6 National Transport Regulations | Chemicals N. O. S. (non regulated) | |

| 15. REGULATORY INFORMATION | | |
|----------------------------|---|--|
| 15.1 EEC Regulations | This product is not classified as dangerous according to EEC | |
| | directive | |
| 15.2 Others | According to available data fatty alcohol is not a dangerous | |
| | chemical. One should, however, observe the usual precautionary | |
| | measures for dealing with chemicals according to local, state and | |
| | federal regulations and requirements | |

| 16. OTHER INFORMATION | | | |
|--------------------------|--|----------------------|--|
| 16.1 Legend | N.A. =Not applicable; N.Av.= Not available | | |
| 16.2 History | | | |
| a. Date of first issue | July 20, 2004 | July 20, 2004 | |
| b. Date of last issue | May 25, 2009 | May 25, 2009 | |
| c. Date of current issue | Sept 25, 2012 | Version 1.04 | |
| MSDS Authorised By | Dr. Kashinath P | Dr. Kashinath Pandit | |

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