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| SAFETY DATA SHEET | | Revision Date: 01/28/2022 |
| | | Print Date: 12/15/2022 |
| | | SDS Number: R0703352 |
| Natrosol™ 250L PHARM Hydroxyethylcellulose ™ Trademark, Ashland or its subsidiaries, registered in various countries 421330 | | Version: 1.11 |

29 CFR 1910.1200 (OSHA HazCom 2012)

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product identifier

Trade name : Natrosol™ 250L PHARM
 Hydroxyethylcellulose
 ™ Trademark, Ashland or its subsidiaries, registered in
 various countries

Substance name : NATROSOL 250 L PHARM

Substance No.
 EC-No. : 618-387-5

CAS-No. : 9004-62-0

Relevant identified uses of the substance or mixture and uses advised against

Recommended use : Rheology modifier
 in Pharmaceutical products

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| <p>Details of the supplier of the safety data sheet Ashland P.O. Box 2219 Columbus, OH 43216 United States of America (USA) 1-614-790-3333 (USA)</p> <p>EHSProductSafety@ashland.com</p> | <p>Emergency telephone number 1-800-ASHLAND (1-800-274-5263)</p> <p>Regulatory information 1-614-790-3333 (customer service)</p> <p>Product Information 1-614-790-3333 (USA)</p> |
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SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Combustible Dust :

GHS label elements

Signal Word : Warning

Hazard Statements : May form combustible dust concentrations in air.

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Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Chemical nature : organic

Hazardous components

No hazardous ingredients

SECTION 4. FIRST AID MEASURES

- General advice : No hazards which require special first aid measures.
- If inhaled : If breathed in, move person into fresh air.
If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : First aid is not normally required. However, it is recommended that exposed areas be cleaned by washing with soap and water.
- In case of eye contact : Remove contact lenses.
Protect unharmed eye.
- If swallowed : Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
- Most important symptoms and effects, both acute and delayed : The most important known symptoms and effects are described in the labelling (see Section 2.2) and/or Section 11.
- Notes to physician : No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local



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circumstances and the surrounding environment.

Water spray

Foam

Hazardous combustion products : Carbon dioxide (CO₂)
Carbon monoxide
Nitrogen oxides (NO_x)
Oxides of phosphorus
Sodium oxides

Specific extinguishing methods :

Product is compatible with standard fire-fighting agents.

Further information : Standard procedure for chemical fires.

Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid dust formation.
Avoid breathing dust.
Material can create slippery conditions.
Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed.

Environmental precautions : Prevent further leakage or spillage if safe to do so.

Methods and materials for containment and cleaning up : Pick up and arrange disposal without creating dust.
Keep in suitable, closed containers for disposal.

Other information : Comply with all applicable federal, state, and local regulations.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : Take measures to prevent the build up of electrostatic charge.
Provide appropriate exhaust ventilation at places where dust is formed.

Advice on safe handling : Avoid dust formation.
Ensure all equipment is electrically grounded and bonded before beginning transfer operations.



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The material can accumulate static charge and can therefore cause electrical ignition of flammable atmospheres. Smoking, eating and drinking should be prohibited in the application area.

For personal protection see section 8.

Maintain good housekeeping. Do not permit dust layers to accumulate, for example, on floors, ledges, and equipment, in order to avoid any potential for dust explosion hazards.

For further guidance on prevention of dust explosions, refer to National Fire Protection Association (NFPA) 654: "Standard for the Prevention of Fire and Dust Explosions, from the Manufacturing, Processing and Handling of Combustible Particulate Solids".

- Conditions for safe storage : No smoking.
- Materials to avoid : No materials to be especially mentioned.
- Further information on storage stability : Keep in a dry place.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures** : Provide appropriate exhaust ventilation at places where dust is formed.
General room ventilation should be adequate for normal conditions of use. However, if unusual operating conditions exist, provide sufficient mechanical (general and/or local exhaust) ventilation to maintain exposure below exposure guidelines (if applicable) or below levels that cause known, suspected or apparent adverse effects.

Personal protective equipment

- Respiratory protection : In the case of dust or aerosol formation use respirator with an approved filter within the capabilities of the respirator/filter combination.
Where concentrations are above recommended limits or are unknown, or a cartridge type respirator is not adequate, wear a positive-pressure supplied-air respirator.

- Hand protection
Material : butyl-rubber



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Break through time : 480 min
Glove thickness : > 0.5 mm

Remarks : The exact break through time can be obtained from the protective glove producer and this has to be observed. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Safety glasses

Skin and body protection : Wear as appropriate:
Safety shoes
Wear resistant gloves (consult your safety equipment supplier).

Hygiene measures : Avoid breathing dust.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : granules, powder

Physical state : solid

Colour : off-white

Odour : odourless

Odour Threshold : Not applicable

pH : 6.0 - 8.5
Concentration: 2 %
(as aqueous solution)

Melting point/freezing point : not determined

Boiling point/boiling range : not determined

Flash point : Not applicable

Evaporation rate : Not applicable

Flammability (solid, gas) : not determined

Upper explosion limit : Upper explosion limit
not determined

Lower explosion limit : Lower explosion limit



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30 g/m³

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| Vapour pressure | : Not applicable |
| Relative vapour density | : Not applicable |
| Relative density | : No data available |
| Density | : 1.38 g/cm ³ |
| Solubility(ies) | |
| Water solubility | : soluble, Limited by viscosity |
| Solubility in other solvents | : No data available |
| Partition coefficient: n-octanol/water | : not determined |
| Auto-ignition temperature | : 460 °C |
| Thermal decomposition | : No data available |
| Viscosity | |
| Viscosity, dynamic | : Not applicable |
| Viscosity, kinematic | : Not applicable |
| Oxidizing properties | : Not applicable |

SECTION 10. STABILITY AND REACTIVITY

| | |
|------------------------------------|--|
| Reactivity | : No decomposition if stored and applied as directed. |
| Chemical stability | : Stable under recommended storage conditions. |
| Possibility of hazardous reactions | : Dust may form explosive mixture in air. |
| Conditions to avoid | : Keep away from heat, flame, sparks and other ignition sources. UV light. Exposure to sunlight. Exposure to moisture |
| Incompatible materials | : Acids |



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Bases
Oxidizing agents
strong bases

Hazardous decomposition
products

Carbon monoxide
Carbon dioxide (CO₂)
Nitrogen oxides (NO_x)
Oxides of phosphorus
Sodium oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation
Skin contact
Eye Contact
Ingestion

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Product:

Remarks: Unlikely to cause eye irritation or injury., Product dust may be irritating to eyes, skin and respiratory system.

Respiratory or skin sensitisation

Skin sensitisation: Not classified based on available information.

Respiratory sensitisation: Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

Reproductive toxicity

Not classified based on available information.

STOT - single exposure

Not classified based on available information.

STOT - repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Further information

Product:



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Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Not classified based on available information.

Long-term (chronic) aquatic hazard : Not classified based on available information.

Persistence and degradability

Product:

Biodegradability : Result: Not readily biodegradable.

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

General advice : Dispose of in accordance with all applicable local, state and federal regulations.

Contaminated packaging : Empty remaining contents.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

REGULATION



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| ID NUMBER | PROPER SHIPPING NAME | *HAZARD CLASS | SUBSIDIARY HAZARDS | PACKING GROUP | MARINE POLLUTANT / LTD. QTY. |
|-----------|----------------------|---------------|--------------------|---------------|------------------------------|
|-----------|----------------------|---------------|--------------------|---------------|------------------------------|

U.S. DOT - ROAD

| |
|---------------------|
| Not dangerous goods |
|---------------------|

CFR_RAIL_C

| |
|---------------------|
| Not dangerous goods |
|---------------------|

U.S. DOT - INLAND WATERWAYS

| |
|---------------------|
| Not dangerous goods |
|---------------------|

TDG_ROAD_C

| |
|---------------------|
| Not dangerous goods |
|---------------------|

TDG_RAIL_C

| |
|---------------------|
| Not dangerous goods |
|---------------------|

TDG_INWT_C

| |
|---------------------|
| Not dangerous goods |
|---------------------|

INTERNATIONAL MARITIME DANGEROUS GOODS

| |
|---------------------|
| Not dangerous goods |
|---------------------|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - CARGO

| |
|---------------------|
| Not dangerous goods |
|---------------------|

INTERNATIONAL AIR TRANSPORT ASSOCIATION - PASSENGER

| |
|---------------------|
| Not dangerous goods |
|---------------------|

MX_DG

| |
|---------------------|
| Not dangerous goods |
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*ORM = ORM-D, CBL = COMBUSTIBLE LIQUID



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|------------------|----|
| Marine pollutant | no |
|------------------|----|

Dangerous goods descriptions (if indicated above) may not reflect quantity, end-use or region-specific exceptions that can be applied. Consult shipping documents for descriptions that are specific to the shipment.

SECTION 15. REGULATORY INFORMATION

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|--------------------|-----------|-----------------------|--------------------------------|
| Disodium phosphate | 7558-79-4 | 5000 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Combustible Dust

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Pennsylvania Right To Know

| | |
|------------------------|--------------|
| HYDROXYETHYL CELLULOSE | 9004-62-0 |
| Inorganic salts | Not Assigned |

New Jersey Right To Know

| | |
|------------------------|--------------|
| HYDROXYETHYL CELLULOSE | 9004-62-0 |
| Inorganic salts | Not Assigned |

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| Sodium dihydrogen phosphate | 7558-80-7 |
| Disodium phosphate | 7558-79-4 |

California Prop. 65

Proposition 65 warnings are not required for this product based on the results of a risk assessment.

The components of this product are reported in the following inventories:

- TCSI : On the inventory, or in compliance with the inventory
- TSCA : All substances listed as active on the TSCA inventory
- AIIC : On the inventory, or in compliance with the inventory
- DSL : All components of this product are on the Canadian DSL
- ENCS : On the inventory, or in compliance with the inventory
- ISHL : On the inventory, or in compliance with the inventory
- KECI : On the inventory, or in compliance with the inventory
- PICCS : On the inventory, or in compliance with the inventory
- IECSC : On the inventory, or in compliance with the inventory
- NZIoC : Not in compliance with the inventory

Inventories

AIIC (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TECI (Thailand), TSCA (USA)

Other regulations

US. Drug Enforcement Administration (DEA) Listed Precursor and Essential Chemicals (21 CFR 1310) Not applicable

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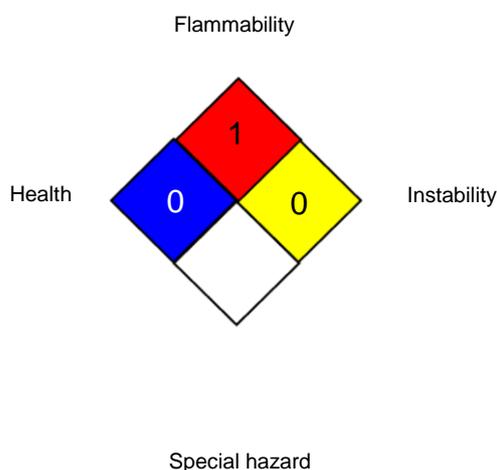
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SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

| | | |
|------------------------|---|----------|
| HEALTH | / | 0 |
| FLAMMABILITY | | 1 |
| PHYSICAL HAZARD | | 0 |

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of H-Statements**Full text of other abbreviations**

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO -



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International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

This sds has been prepared by Ashland. (<http://www.ashland.com>)

Sources of key data used to compile the Safety Data Sheet : Ashland internal data including own and sponsored test reports
European Union Law with content from the Official Journal of the European Union.
European Chemicals Agency; the EU authority implementing the EU's chemicals legislation for companies.
The German Water Hazard Classes.
ReachCentrum; a series of support services to help comply with REACH regulations.
The European Commission; proposing legislation, administering and implementing EU policies, and enforcing EU law.
The UNECE administers regional agreements implementing harmonised classification for labelling (GHS) and transport.
Cefic, the European Chemical Industry Council.
ESIS European Chemical Substances Information System

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the

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specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
 US / EN