

SAFETY DATA SHEET

Heparin HyperD[®] M

Section 1. Identification

| | |
|--------------------------------------|---|
| GHS product identifier | : Heparin HyperD M |
| Other means of identification | : Chromatographic (sorbent) solid suspended in a carrier solution (20 % v/v ethanol and 1M sodium chloride aqueous solution). |
| Part number | : 20029-xxx |
| Product description | : Affinity chromatography sorbents in carrier solution. |
| Product type | : Mixture. Suspended solid in carrier solution. |

Identified uses

Purification of biological molecules by affinity chromatography.

| | |
|-----------------|--|
| Supplier | : Pall BioSeptra, Division of Pall France 48 Avenue des Genottes F-95800 Cergy St Christophe +33 (0)1 34 20 78 00 www.pall.com |
|-----------------|--|

| | |
|--|------------------------------|
| e-mail address of person responsible for this SDS | : reach_coordinator@pall.com |
|--|------------------------------|

| | |
|---|--|
| Emergency telephone number (with hours of operation) | : CHEMTREC, U.S. : 1-800-424-9300 International: +1-703-527-3887 24 hours/day, 7 days/week |
|---|--|

| | |
|---------------------------|----------|
| COUNTRY OF ORIGIN: | : France |
|---------------------------|----------|

Section 2. Hazards identification

| | |
|------------------------|---|
| OSHA/HCS status | : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
|------------------------|---|

| | |
|---|--|
| Classification of the substance or mixture | : FLAMMABLE LIQUIDS - Category 3 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A |
|---|--|

GHS label elements

Hazard pictograms



| | |
|--------------------|-----------|
| Signal word | : Warning |
|--------------------|-----------|

| | |
|--------------------------|---|
| Hazard statements | : Flammable liquid and vapor. Causes serious eye irritation. |
|--------------------------|---|

Precautionary statements

| | |
|-------------------|--|
| Prevention | : Wear protective gloves: > 8 hours (breakthrough time): Natural rubber (latex). Wear eye or face protection: Recommended: Splash goggles. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Wash hands thoroughly after handling. |
|-------------------|--|

**Section 2. Hazards identification**

- Response** : IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Chromatographic (sorbent) solid suspended in a carrier solution (20 % v/v ethanol and 1M sodium chloride aqueous solution).

CAS number/other identifiers

- CAS number** : Not applicable.
- Product code** : 20029-xxx

Composition of material as supplied:

| | | | | |
|-----------------------------|-------|--------|----|-----|
| Container Size | 25 ml | 100 ml | 1L | 10L |
| % Sorbent | 76 | 86 | 72 | 86 |
| % Additional Liquid Carrier | 24 | 14 | 28 | 14 |

| Ingredient name | % w/w | CAS number |
|----------------------------|-------|------------|
| Carrier solution: | | |
| Ethyl Alcohol | 16 | 64-17-5 |
| 1M aqueous Sodium chloride | 84 | 7647-14-5 |
| Chromatography sorbent: | | |
| Silicic solid | 100 | |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures**Description of necessary first aid measures**

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Ingestion** : Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if adverse health effects persist or are severe.

Most important symptoms/effects, acute and delayed



Section 4. First aid measures

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Irritating to mouth, throat and stomach.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
 - pain or irritation
 - watering
 - redness
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.
- Unsuitable extinguishing media** : Do not use water jet or water-based fire extinguishers.

- Specific hazards arising from the chemical** : Flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
 - carbon dioxide
 - carbon monoxide

- Special protective actions for fire-fighters** : Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.



Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Keep container tightly closed. Keep container in a cool, well-ventilated area. This product should be stored between 2 - 8 °C (36 - 46°F).

**Section 8. Exposure controls/personal protection****Control parameters****Occupational exposure limits**

| Ingredient name | Exposure limits |
|-----------------|---|
| Ethyl Alcohol | ACGIH TLV (United States, 4/2014). STEL: 1000 ppm 15 minutes. NIOSH REL (United States, 10/2013). TWA: 1900 mg/m ³ 10 hours. TWA: 1000 ppm 10 hours. OSHA PEL (United States, 2/2013). TWA: 1900 mg/m ³ 8 hours. TWA: 1000 ppm 8 hours. |

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Follow good industrial hygiene practice.

Eye/face protection : Safety glasses.

Skin protection

Hand protection : Natural rubber (latex).

Body protection : Lab coat or equivalent.

Other skin protection : Not required under normal conditions of use.

Respiratory protection : A respirator is not needed under normal and intended conditions of product use.

Section 9. Physical and chemical properties

Note: The properties listed here are based on the carrier solution.

Appearance

Physical state : Liquid.

Color : Colorless to white.

Odor : Ethanol

Odor threshold : Not available.

pH : 6 to 8

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: 36°C (96.8°F) (Pensky-Martens.).

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : >1 (Butyl acetate = 1)

**Section 9. Physical and chemical properties**

| | |
|---|---|
| Flammability (solid, gas) | : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge. Slightly flammable in the presence of the following materials or conditions: heat. |
| Lower and upper explosive (flammable) limits | : Not available. |
| Vapor pressure | : 1.3 kPa (9.7508 mm Hg) [room temperature] |
| Vapor density | : 1 [Air = 1] |
| Relative density | : 1 |
| Solubility | : Not available. |
| Partition coefficient: n-octanol/water | : Not available. |
| Auto-ignition temperature | : Not available. |
| Decomposition temperature | : Not available. |
| Viscosity | : Not available. |

Section 10. Stability and reactivity

| | |
|---|---|
| Reactivity | : No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | : The product is stable. |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur. |
| Conditions to avoid | : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. |
| Incompatible materials | : Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. |
| Hazardous decomposition products | : Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

Section 11. Toxicological information**Information on toxicological effects****Acute toxicity**

| Product/ingredient name | Result | Species | Dose | Exposure |
|-------------------------|-----------------------|---------|--------------------------|----------|
| Ethyl Alcohol | LC50 Inhalation Vapor | Rat | 124700 mg/m ³ | 4 hours |
| | LD50 Oral | Rat | 7 g/kg | - |

Irritation/Corrosion

**Section 11. Toxicological information**

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|--------------------------|---------|-------|-------------------------------|-------------|
| Ethyl Alcohol | Eyes - Moderate irritant | Rabbit | - | 100 µL | - |
| | Skin - Moderate irritant | Rabbit | - | 24 hours 20 mg | - |
| | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| | Eyes - Moderate irritant | Rabbit | - | 0.066666667 minutes 100 mg | - |
| | Eyes - Severe irritant | Rabbit | - | 500 mg | - |
| | Skin - Mild irritant | Rabbit | - | 400 mg | - |

Sensitization

There is no data available.

Carcinogenicity

Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

There is no data available.

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation.

Potential acute health effects

Eye contact : Causes serious eye irritation.
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : Irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness
Inhalation : No known significant effects or critical hazards.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

Long term exposure

Potential immediate effects : No known significant effects or critical hazards.
Potential delayed effects : No known significant effects or critical hazards.

**Section 11. Toxicological information****Potential chronic health effects**

- General** : No known significant effects or critical hazards.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.
Teratogenicity : No known significant effects or critical hazards.
Developmental effects : No known significant effects or critical hazards.
Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity**Acute toxicity estimates**

There is no data available.

Section 12. Ecological information**Toxicity**

| Product/ingredient name | Result | Species | Exposure |
|-------------------------|--------------------------------------|--|----------|
| Ethyl Alcohol | Acute EC50 17.921 mg/L Marine water | Algae - Ulva pertusa | 96 hours |
| | Acute EC50 2000 µg/L Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 25500 µg/L Marine water | Crustaceans - Artemia franciscana - Larvae | 48 hours |
| | Acute LC50 42000 µg/L Fresh water | Fish - Oncorhynchus mykiss | 4 days |
| | Chronic NOEC 4.995 mg/L Marine water | Algae - Ulva pertusa | 96 hours |
| | Chronic NOEC 0.375 ul/L Fresh water | Fish - Gambusia holbrooki - Larvae | 12 weeks |

Persistence and degradability

There is no data available.

Bioaccumulative potential

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|-------------------------|--------------------|-----|-----------|
| Ethyl Alcohol | -0.32 | - | low |

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.

- Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when



Section 13. Disposal considerations

recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

| | DOT Classification | IMDG | IATA |
|-----------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| UN number | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | - | - | - |
| Transport hazard class(es) | - | - | - |
| Packing group | - | - | - |
| Environmental hazards | No. | No. | No. |
| Additional information | Not restricted, Special Provision 144 | Not restricted, Special Provision 144 | Not restricted, Special Provision A58 |

AERG : Not applicable.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

**Section 15. Regulatory information**

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304**Composition/information on ingredients**

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard

Composition/information on ingredients

| Name | % | Fire hazard | Sudden release of pressure | Reactive | Immediate (acute) health hazard | Delayed (chronic) health hazard |
|---------------|----|-------------|----------------------------|----------|---------------------------------|---------------------------------|
| Ethyl Alcohol | 16 | Yes. | No. | No. | Yes. | No. |

SARA 313

No products were found.

State regulations

Massachusetts : The following components are listed: Ethyl Alcohol

New York : None of the components are listed.

New Jersey : The following components are listed: Ethyl Alcohol

Pennsylvania : The following components are listed: Ethyl Alcohol

California Prop. 65

No products were found.

Section 16. Other information**History**

Date of issue mm/dd/yyyy : 04/30/2015

Date of previous issue : 09/15/2006

Version : 3

Revised Section(s) : 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16.

Prepared by : KMK Regulatory Services Inc.

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)



Pall Corporation

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Section 16. Other information

UN = United Nations

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes 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 materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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