

PRODUCT NAME : DIFFUSION PUMP FLUID - SANTOVAC 5

1. Product and Company Identification

Product Name: Santovac 5
Synonyms: None
Item Numbers : H114-01-001, H114-01-002, H114-01-003

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2. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Proprietary formulation of polyphenyl esters	Percentage composition not available	Not allocated	Not applicable	Not applicable

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive (67/548/EEC, as amended) and are present in sufficient concentration to make the overall substance hazardous. In all other situations, the column will be completed as "Not applicable".

3. Hazards Identification

EMERGENCY OVERVIEW

This material when properly handled according to good working and hygienic practices is not dangerous to human health.

The material is not readily biodegradable and has a potential to accumulate in the environment. May cause long term adverse effects in the aquatic environment.

For short and long term exposure effects see Section 11 Toxicological data

Eye Effects: Slightly irritating.
Skin Effects: Slightly irritating.
Ingestion/Oral Effects: Practically non poisonous.
Inhalation Effects: Extremely low volatility makes inhalation an unlikely hazard in normal use.

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MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known

NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	1	Health	0	0 = No Hazard
Flammability	1	Flammability	1	1 = Slight hazard
Instability	0	Reactivity	0	2 = Moderate Hazard
				3 = Serious Hazard
				4 = Severe hazard

4. First Aid Measures

- Eyes:** Flush with plenty of water. If irritation persists, seek medical attention.
- Skin:** Wash with soap and water.
- Ingestion/Oral:** None.
- Inhalation:** If high concentrations of mists or fumes are inhaled, remove to fresh air. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration as indicated. Seek immediate medical treatment for anyone who has symptoms apparently due to inhalation of fumes produced in a fire or high temperature.
- Other Information:** None.

5. Fire Fighting Measures

- Extinguishing Media:** Carbon dioxide, foam, dry powder or fine water spray.
- Fire and Explosion Hazard:** Decomposes in a fire giving off harmful fumes. Hazardous decomposition products: carbon monoxide. Phenol and other phenolic compounds are generated if grossly overheated under vacuum.
- Special Protective Equipment for Fire Fighters:** In confined spaces or for large fires, fire fighters should wear a self-contained breathing apparatus (SCBA) which meets appropriate standards operated in positive pressure mode, and full turnout gear. Wear skin protection adequate to protect against thermal decomposition products.

For Flammability Properties - see Section 9

6. Accidental Release Measures

Avoid discharge into the environment. Keep out of drains and water courses. Wipe surfaces with rags or cellulose waste. Absorb material in sand or earth before sweeping up into containers for disposal.

7. Handling and Storage

- Handling:** no special measures required. The material may soften some plastics-for example, polystyrene.
- Storage:** store in a cool well ventilated place.

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8. Exposure Controls/Personal Protection

Exposure Limits

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
None	Not applicable	Not applicable	Not applicable

Personal Protection:

Engineering Measures: General ventilation is required.

Respiratory Protection: Avoid breathing vapour from hot material. In case of insufficient ventilation, wear suitable respiratory equipment.

Hand/Skin Protection: Wear suitable gloves. Wear suitable protective clothing where there is the possibility of splashing.

Eye/Face Protection: Wear goggles where there is the possibility of splashing.

Hygiene Measures: Practice good workplace hygiene. Do not eat or smoke when handling. Wash hands after handling and before eating.

Other/General Protection: None.

9. Physical and Chemical Properties

Appearance and Odour	Light yellow essentially clear liquid	Boiling Point	476/889	°C/°F
pH (as supplied)	No data available	Freezing Point	No data available	°C/°F
Solubility in Water	Insoluble	Auto Ignition	613/1135	°C/°F
Volatile Content by Volume	No data available	Flash Point	288/520	°C/°F
Specific Gravity	1.195-1.201 @ 25°C/77 °F			
Vapour Pressure (mbar)	2.6 x 10 ⁻¹⁰ @ 20°C	Vapour Pressure (Torr)	2.0 x 10 ⁻¹⁰ @ 68°F	

10. Stability and Reactivity

Stability: Stable.

Material/Conditions to Avoid: There are no particular hazardous chemical reactivity properties. There are no materials which must be avoided.

Hazardous Decomposition: Carbon monoxide. Phenol and other phenolic compounds if grossly overheated under vacuum.

11. Toxicological Information

For a comprehensive description for the various toxicological (health) effects which may arise if the user comes into contact with the substance or preparation refer to Section 3 Hazards Identification.

Slightly irritating to skin but not sufficient for classification.

Slightly irritating to eyes but not sufficient for classification.

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Animal Data:

LD50 value: Oral: >10000 mg/kg (rat)
Dermal: >5000 mg/kg (rabbit)
LC50 value: No data available

Carcinogenicity:

No known carcinogenic effects. The material does not have mutagenic effects.

12. Ecological Information

The material is not readily biodegradable and has a potential to accumulate in the environment. May cause long term adverse effects in the aquatic environment.

Evaluation for biodegradation in a shake flask CO₂ evolution assay: 4% CO₂ evolution in 35 days.

13. Disposal Considerations

Burn only in proper incinerator. All local and national regulations should be followed.

14. Transport Information

This product is not classified as dangerous under transport regulations.

PARAMETER	EUROPEAN	CANADIAN TDG	UNITED STATES DOT
Proper Shipping Name	Not applicable	Not applicable	Not applicable
Hazard Class	Not applicable	Not applicable	Not applicable
Identification Number	Not applicable	Not applicable	Not applicable
Shipping Label	Not applicable	Not applicable	Not applicable

15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with the Dangerous Substances Directive (67/548/EEC, as amended) and the Preparations Directive (88/379/EEC, as amended), implemented in the UK as the Chemical (Hazard Information and Packing) Regulations 1994 (CHIP, as amended).

Classified as dangerous to supply : No

Risk Phrases : R53 (May cause long-term adverse effects in aquatic environment)

Safety Phrases : S61 (Avoid release to the environment. Refer to special instructions/safety data sheets)

Symbols : None

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United States Regulatory Information

All materials contained in this product are listed on the U.S. Toxic Substances Control Act (TSCA).

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION:

This product does not contain toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 and 40 CFR Part 372.

California Proposition 65: This product does not contain chemicals known to the State of California to cause cancer or reproductive toxicity.

Canadian Regulatory Information

WHMIS Classification: Not Applicable

All ingredients in this product are included in the Canadian DSL

16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and the EU Safety Data Sheet Directive 91/155/EEC.

Sources of information for this data sheet:

- Monsanto Safety Data Sheets for Santovac 5. Document 1360/E/1. Issue date: 20 August, 1996.
- Edwards Publication 'Fluids and Sealants'. Publication number 09-H021-20-895.

Glossary : **CAS**, Chemical Abstracts Service; **NFPA**, National Fire Protection Association; **HMIS**, Hazardous Material Information Service; **LD**, Lethal Dose; **LC**, Lethal Concentration; **ACGIH**, American Conference of Governmental Industrial Hygienists; **TLV**, threshold limit value; **OSHA**, Occupational Safety and Health Administration, US department of Labour; **PEL**, Permissible exposure limit; **EH40 (UK)**, HSE Guidance Note EH40 Occupational exposure limits; **PPM**, parts per million; **TWA**, Time-Weighted Average; **STEL**, Short Term Exposure Limit; **Canadian TDG**, Canadian Transportation of Dangerous Goods; **US DOT**, US Department of Transportation. **HSDB**, Hazardous Substances Data Bank; **RTECS**, Registry of Toxic Effects of Chemical Substances; **CHEMID**, Chemical Identification; **DSL**, Domestic Substances List ; **TSCA**, Toxic Substances Control Act Public Law 94-469: **CERCLA**, Comprehensive Environmental Response, Compensation and Liability Act; **EPCRA**, Emergency Planning and Community Right-to-Know Act; **CAA**, Clean Air Act; US, **SARA (Title III)**, Superfund Amendments and Reauthorization Act.; **SARA 313**, Superfund Amendments and Reauthorization Act, Section 313; **EHS**, Extremely Hazardous Substance; **WHMIS**, Workplace Hazardous Materials Information System.

Revisions

Although the information and recommendations in this data sheet are to the best of our knowledge correct, it is recommended that you make your own determination of the material's suitability for your purpose before you use it. The information contained in this data sheet has been reproduced from the manufacturers data, the accuracy of this information is the responsibility of the manufacturer. BOC Edwards accept no responsibility for damage of any nature resulting from the use of, or the reliance upon this data sheet.