

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : ROTARY PUMP BLADE MATERIAL - FEROFORM F43

1. Product and Company Identification

Product name: Rotary pump blade material - Feroform F43
Synonyms: None
Item Numbers: This material is used for blades in Edwards E1M5, E2M5, E1M8, E2M8, E2M12, E1M18, E2M18 and E2M28/30 pumps, and can be found in new and serviced pumps.

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2. Hazards Identification

EMERGENCY OVERVIEW

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

This material contains aramid fibres. Breathing dust containing high levels of aramid fibre can cause chronic lung disease. Toxic gases are given off on combustion.

For short and long term exposure effects see Section 11 Toxicological information.

Eye Effects: Not applicable to finished components. Dust/particles or thermal decomposition vapours may cause mechanical irritation.

Skin Effects: Non irritant (data for base resin). Dust/particles may cause mechanical irritation.

Inhalation Effects: Not applicable to finished components (pump blades). Base resin has low toxicity.

Ingestion/Oral Effects: Hazardous and irritating vapours generated on overheating. Inhalation of dust may cause chronic lung disease.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Gases/vapours evolved during overheating may affect people with chronic diseases of the respiratory system.

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NFPA Hazard codes		HMIS Hazard codes		Rating System
Health	Not known	Health	Not known	0 = No Hazard
Flammability	Not known	Flammability	Not known	1 = Slight Hazard
Instability	Not known	Reactivity	Not known	2 = Moderate Hazard
				3 = Serious Hazard
				4 = Severe Hazard

3. Composition/Information on Ingredients

Ingredient	% Weight	CAS No	Hazard class*	Risk phrase*
Aramid fibre	Not disclosed	26125-61-1	Not applicable	Not applicable
Glass fibre	Not disclosed	Not assigned	Not applicable	Not applicable

*Hazard class & Risk phrase. These columns are only completed for ingredients which are classified as hazardous under EU Directive No 1272/2008 (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".

4. First Aid Measures

- Eyes:** In case of contact with the eyes, gently irrigate with clean water for at least 15 minutes. Move eyeball and keep eyelids wide open whilst irrigating. Seek immediate medical assistance.
- Skin:** Vacuum excessive dust from clothes, skin and hair. Wash and clean contaminated skin with soap and clean water.
- Ingestion/Oral:** If swallowed, give the patient plenty of water to drink, and seek medical assistance. DO NOT give anything to drink to an unconscious person.
- Inhalation:** Avoid breathing dust. If inhaled, remove to fresh air. If breathing problems occur, a qualified individual should administer oxygen or artificial respiration as indicated. Seek immediate medical assistance.
- Other Information:** See Section 8 Exposure controls/personal protection.

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5. Fire Fighting Measures

- Extinguishing Media: Water or foam.
- Fire and Explosion Hazard: Feroform composites are ignitable and, once ignited, will continue to burn in a free supply of air, producing hazardous fumes and dense smoke.
- Special Protective Equipment for Fire Fighters: 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 from thermal decomposition products.

For Flammability Properties - see Section 9.

6. Accidental Release Measures

Put on the necessary protective clothing as specified in Section 8.

Feroform dust should be removed by vacuum at frequent precautions intervals during work to prevent the accumulation of dust. Use an industrial vacuum cleaner (with 'H' type filters and suitable bags) to vacuum up any dust. If a vacuum cleaner cannot be used, dampen the spilled dust and collect while still damp. Place the collected spilled dust in suitable containers (see Section 13) for recovery or disposal.

7. Handling and Storage

- Handling: Take precautionary measures against exposure to dust. Avoid prolonged heating above 400 °C (753 °F).
- Storage: Store in clean, dry conditions. All items should be packed to prevent movement and abrasion during transit.

8. Exposure Controls/Personal Protection

Prolonged exposure to levels of aramid and glass fibre dust which are above the occupational exposure limit may cause chronic lung disease.

Exposure Limits:

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Aramid fibre	No data available	No data available	0.5 f/ml - 8 H TWA
Glass fibre	No data available	No data available	5 mg/m ³ - 8 H TWA (inhalable dust) 2 f/ml - 8 H TWA ⁽¹⁾ (respirable dust)

(1) Fibres longer than 5 µm with a diameter less than 3 µm - aspect ratio greater than 5:1.

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Personal Protection:

Engineering Measures:	Provide local exhaust ventilation when processing material, or when dust/particles may be present.
Respiratory Protection:	Wear dust mask when processing material, or when dust/particles may be present. If dust levels are likely to exceed the occupational exposure limit, approved respirators must be used.
Hand/Skin Protection:	Gloves can be used if desired, but they should not be used with rotating plant. Barrier cream can be used.
Eye/Face Protection:	Wear protective goggles/safety glasses/face shield when processing material, or when dust/particles may be present.
Hygiene Measures:	Observe normal standards of industrial hygiene. Do not eat, drink or smoke when handling material. Wash hands before eating, drinking or smoking.
Other/General Protection:	None.

9. Physical and Chemical Properties

Appearance and Odour	Yellowish brown. Slight characteristic resin odour	Boiling point	Not applicable	°C/°F
pH (as supplied)	Not applicable	Freezing Point	Not applicable	°C/°F
Solubility in Water	Not soluble	Auto Ignition	Not applicable	°C/°F
Volatile Content by Volume	Not applicable	Flash Point	Not applicable	°C/°F
Specific Gravity	1.2 - 1.9			
Vapour Pressure (mbar)	No data available	Vapour Pressure (Torr)	No data available	

10. Stability and Reactivity

Stability:	Stable below relatively high temperatures.
Material/Conditions to Avoid:	Contact with strong acids or alkalis. Prolonged exposure to temperatures above 400 °C (752 °F).
Hazardous Decomposition:	At temperatures above 400 °C (752 °F), ammonia, carbon monoxide, carbon dioxide, formaldehyde, ethylene and benzene may be given off.
Hazardous Polymerisation:	No data available.

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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 2 Hazards Identification.

Animal data:

LD50 value: No data available.

LC50 value: No data available.

Aramid fibres are insoluble and respirable although animal studies suggest a lack of durability of the fibres in the lung.

Carcinogenicity:

No known carcinogenic hazardous effects in normal working environment.

Formaldehyde, which may be evolved as a result of decomposition, is a potential carcinogen.

12. Ecological Information

No information available.

13. Disposal Considerations

Where possible, recycle the product and packaging. Dispose of the product and any packaging in accordance with all local and national regulations.

Feroform dust should be placed in impermeable, heavy-gauge polythene sacks or bags which should then be sealed, and disposed of at an authorised site.

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

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15. Regulatory Information

European Regulatory Information

This product has been classified in accordance with EU Regulation No 1272/2008 (as amended) on the Classification, Labelling and Packaging of Substances and Mixtures.

Classified as dangerous to supply: No.

Risk Phrases: Not applicable.

Safety Phrases: Not applicable.

Symbols: None.

United States Regulatory Information

Product is a manufactured article not subject to TSCA listing.

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION: This product constitutes an "article" and, as such is exempt from SARA 313 reporting requirements (40 CFR Part 372.38, Paragraph B).

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: Product is a manufactured article not subject to WHMIS regulations.

Product is a manufactured item not subject to DSL listing.

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16. Other Information

This MSDS is compiled in accordance with ANSI Z400.1 and Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Sources of information for this data sheet:

- TENMAT LTD "FEROFORM (F21, F24, F32, F36, F363, F43, F57, F573, F61, EM2050 GRADES)" MATERIAL SAFETY DATA SHEET, MSDS NUMBER: FEROFORM F & EM, DATE OF ISSUE: APRIL 2004, REVISION: AUGUST 2005.

Glossary:

ACGIH - American Conference of Governmental Industrial Hygienists; **ANSI** - American National Standards Institute; **Canadian TDG** - Canadian Transportation of Dangerous Goods; **CAS** - Chemical Abstracts Service; **CFR** - Code of Federal Regulations; **Chemtrec** - Chemical Transportation Emergency Center (US); **DSL** - Domestic Substances List; **EH40 (UK)** - HSE Guidance Note EH40 Occupational Exposure Limits; **EU** - European Union; **HMIS** - Hazardous Material Information Service; **LC** - Lethal Concentration; **LD** - Lethal Dose; **NFPA** - National Fire Protection Association; **OSHA** - Occupational Safety and Health Administration, US Department of Labour; **PEL** - Permissible Exposure Limit; **SARA (Title III)** - Superfund Amendments and Reauthorization Act; **SARA 313** - Superfund Amendments and Reauthorization Act, Section 313; **SCBA** - Self-Contained Breathing Apparatus; **TLV** - Threshold Limit Value; **TSCA** - Toxic Substances Control Act Public Law 94-469; **TWA** - Time-Weighted Average; **US DOT** - US Department of Transportation; **WHMIS** - Workplace Hazardous Materials Information System;

Revisions:

Sept. 2010 - Data Sheet updated to reflect the latest supplier safety information.

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. Edwards accept no responsibility for damage of any nature resulting from the use of, or the reliance upon, this data sheet.