

MATERIAL SAFETY DATA SHEET

PRODUCT NAME : XDS TIP SEALS DUST

1. Product and Company Identification

Product Name: Dust generated by a PTFE based XDS scroll pump wall tip seal material, in the normal course of wear with time.

Item Numbers : A724-01-903, A724-01-904, A724-01-905, A724-01-906 (XDS5-Sci pumps)
A725-01-903, A725-01-904, A725-01-905, A725-01-906 (XDS5-C pumps)
A726-01-903, A726-01-904, A726-01-905, A726-01-906 (XDS10-Sci pumps)
A727-01-903, A727-01-904, A727-01-905, A727-01-906 (XDS10-C pumps)
A730-01-983 (XDS35-i pump), A726-01-805, A730-01-801 (XDS5/10 & 35-i Tip Seal Kits)

2. Composition/Information on Ingredients

Ingredient	% Weight (min)	% Weight (max)	CAS No.	Hazard class*	Risk phrase*
Polytetrafluoroethylene	20	100	9002-84-0	Not applicable	Not applicable
Bronze	0	80	-	Not applicable	Not applicable
Peek	0	50	29658-26-2	Not applicable	Not applicable
Polyimide #	0	40	134119-41-8	Not applicable	Not applicable
Calcium Fluoride	0	40	7789-75-5	Not applicable	Not applicable
Activated Carbon	0	35	7440-44-0	Not applicable	Not applicable
Poly (Oxy-1, 4-Phenylenecarbonyl)	0	35	26099-71-8	Not applicable	Not applicable
Calcined Coke (Petroleum)	0	35	64743-05-1	Not applicable	Not applicable
1, 4-Dichlorobenzene-Disodium Sulphide Polymer	0	30	26125-40-6	Not applicable	Not applicable
Molybdenum Sulphide (MoS ₂)	0	25	1317-33-5	Not applicable	Not applicable
Poly (Thio-1, 4-Phenylene)	0	25	25212-74-2	Not applicable	Not applicable
Aluminium Oxide	0	25	1344-28-1	Not applicable	Not applicable
Iron Oxide (Fe ₂ O ₃)	0	5	1309-37-1	Not applicable	Not applicable
C. I. Pigment Blue 36	0	1	68187-11-1	Not applicable	Not applicable

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 2 of 7

PRODUCT NAME : XDS TIP SEALS DUST

Ingredient	% Weight (min)	% Weight (max)	CAS No.	Hazard class*	Risk phrase*
Zinc Iron Chromite Brown Spinel	0	1	68186-88-9	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".

#Polyimide: 1, 3-Isobenzofurandione, 5, 5'-Carbonylbis-, polymer with 1H, 3H-benzo (1, 2-C:4, 5-C) Difuran-1,3,5,7-Tetrone and 1, 3-Diisocyanatomethylbenzene.

The components of this product are in compliance with the chemical notification of TSCA. All applicable chemical ingredients in this compound are listed on the European Inventory of Existing Chemical Substances (EINECS), or are exempt polymers whose monomers are listed on EINECS.

3. Hazards Identification

EMERGENCY OVERVIEW

A fine black dust may be emitted from the pump if the exhaust is not connected and the pump has run for some time, at or near the pump's ultimate vacuum. The dust may also be encountered when the pump is dismantled for servicing.

This dust may irritate the skin, the eyes and the respiratory system. The dust should not be inhaled.

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

Eye Effects: May cause mild Irritation.
Skin Effects: May cause mild irritation.
Ingestion/Oral Effects: May cause gastro-intestinal irritation. Can be harmful.
Inhalation Effects: May cause upper respiratory tract irritation.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: None known

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

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 3 of 7

PRODUCT NAME : XDS TIP SEALS DUST

4. First Aid Measures

- Eyes:** Get immediate medical attention. Immediately flush eyes with plenty of water for at least 15 minutes. Do not attempt to remove the material.
- Skin:** Get immediate medical attention. Immediately wash with plenty of water for at least 15 minutes. Do not attempt to remove the material. Cover the affected area with a clean dressing.
- Ingestion/Oral:** Rinse mouth with water, then drink plenty of water.
- Inhalation:** Remove patient to fresh air. If respiratory symptoms develop, get medical attention.
- Other Information:** Inhalation of decomposition products resulting from exposure of the dust to high temperatures, or from smoking fluoroelastomer contaminated tobacco may cause a temporary flu-like illness known as "polymer flu fever". Refer to other sections of this document.

5. Fire Fighting Measures

- Extinguishing Media:** The dust is non-combustible. Use extinguishing media suitable for the surrounding fire.
- Fire and Explosion Hazard:** See Section 10 for products of combustion.
- Special Protective Equipment for Fire Fighters:** Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, tunic and trousers (leggings), bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

For Flammability Properties - see Section 9

6. Accidental Release Measures

Avoid discharge into the environment. Keep out of drains, sewers and water courses

Evacuate unprotected and untrained personnel from the hazard area. Qualified personnel must clean up the spill. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Use wet sweeping compound or water to avoid dusting. Sweep up. Clean up residue. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible. Refer to Section 13 for disposal requirements.

7. Handling and Storage

- Handling:** Avoid contact with eyes: wear safety goggles/glasses with side shields. Avoid prolonged or repeated contact with skin: wear suitable protective gloves. Avoid breathing airborne dust: wear suitable respiratory equipment where necessary.
- Storage:** Store away from sources of heat. Store away from areas where the dust may come into contact with food or pharmaceuticals. Store away from flammable and combustible materials.

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 4 of 7

PRODUCT NAME : XDS TIP SEALS DUST

8. Exposure Controls/Personal Protection

Exposure Limits

Ingredient	ACGIH - TLV -	OSHA - PEL	Occupational Exposure Limits EH40 (UK)
Activated carbon			TWA: 10 mg/m ³ (Total inhalable dust) 4 mg/m ³ (Respiratory dust)
Molybdenum Sulphide			TWA: 10 mg/m ³ as Mo OES STEL: 20 mg/m ³ as Mo OES
Aluminium Oxide			TWA: 10 mg/m ³ (Total inhalable dust) 4 mg/m ³ (Respirable dust)
Iron Oxide			TWA: 10 mg/m ³ (Total inhalable dust) as Rouge 4 mg/m ³ (Respirable dust) as Rouge STEL: 10 mg/m ³ fume as Fe OES
C.I. Pigment Blue 36			(as Co) 0.1 mg/m ³ OES

Personal Protection:

Engineering Measures:	General ventilation is required.
Respiratory Protection:	Avoid breathing airborne dust. Wear suitable respiratory equipment where necessary.
Hand/Skin Protection:	Wear suitable neoprene or nitrile rubber gloves. Wear suitable protective clothing where there is the possibility of airborne dust.
Eye/Face Protection:	Wear goggles/safety glasses.
Hygiene Measures:	Practice good workplace hygiene. Do not eat or smoke when handling. Wash hands after handling and before eating.
Other/General Protection:	None.

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 5 of 7

PRODUCT NAME : XDS TIP SEALS DUST

9. Physical and Chemical Properties

Appearance and Odour	Fine black odourless powder	Boiling Point	Not applicable	°C/°F
pH (as supplied)	Not applicable	Freezing Point	Not applicable	°C/°F
Solubility in Water	Insoluble	Auto Ignition	> 500/932	°C/°F
Volatile Content by Volume	Not applicable	Flash Point	Not applicable	°C/°F
Specific Gravity	2.0-4.0 g/cc ASTM D792 D1457			
Vapour Pressure (mbar)	Not applicable	Vapour Pressure (Torr)	Not applicable	

Melting point: 327 to 342°C /620 to 648°F (ASTM D 1457).

Dust particle size: A small proportion of dust passes through a filter with hole size of 1×10^{-6} m.

10. Stability and Reactivity

Stability: Stable.

Material/Conditions to Avoid: Alkali and alkaline earth metals. Reactions with metals in powder form occur from temperatures of 370°C/698°F upwards.

Do not heat the dust in a non-compressed, finely divide powder form above 200°C/392°F in air. This could result in an uncontrolled exothermic reaction.

Hazardous Decomposition: Hazardous decomposition products include: Carbon Monoxide and Carbon Dioxide, Hydrogen Fluoride, Perfluoroisobutylene (PFIB), Hexafluoropropylene, Carbonyl Fluoride, Tetrafluoroethylene, toxic vapours, gases or particulates.
Initial decomposition occurs at 380°C/716°F, and above 420°C/788°F significant decomposition occurs with the formation of decomposition products listed above..

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.

Animal Data:

LD50 value: No data available

LC50 value: No data available

Carcinogenicity:

Does not contain a chemical which is known to cause cancer.

12. Ecological Information

The material is not readily biodegradable and has the potential to accumulate in the environment.

Clear up spills as described in Section 6.

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 6 of 7

PRODUCT NAME : XDS TIP SEALS DUST

13. Disposal Considerations

Incinerate only in a suitable industrial or commercial facility, in the presence of a combustible material. Combustion products will include HF. All local and national regulations should be followed.

14. Transport Information

This product is not classified as dangerous under transport regulations. If the product is to be transported when removed from the pump, it should be sealed in a closed container.

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 : None
Safety Phrases : None
Symbols : None

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 contains the following 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:

C. I. Pigment Blue 36, Zinc Iron Chromite Brown Spinel, C. I. Pigment yellow 119.

EPCRA Hazardous Waste Number - None (non-hazardous)

EPCRA Hazard Class - Fire hazard: no pressure, no reactivity, no acute, no chronic

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

MATERIAL SAFETY DATA SHEET

P120-30-010
Issue: B
Rev Date: 01-02-05
Page: 7 of 7

PRODUCT NAME : XDS TIP SEALS DUST

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:

- "DYNEON (TM) PTFE FILLED COMPOUNDS" Material Safety Data Sheet, Document Id: 09-3541-1, Version: 2.01, Issue Date: 11/11/2003.

Glossary : **CAS**, Chemical Abstracts Service; **EINECS**, European Inventory of Existing Chemical Substances; **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.