July 24, 2008

To Our Customer,

Freelin-Wade Co., A Coilhose Pneumatics Company, certifies that our PUR95A tubing is produced from a polyurethane compound manufactured from material that meets NSF under Standard 61. The resin is listed with Underwriters Laboratory as having a UL flame rating of HB and contains a UV stabilizer. Additionally, this material is DEHP free.

This material is RoHS compliant for lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyls (PBB's), and polybrominated diphenyl ethers (PBDE's). This compliance continues to include the Deca-BDE requirement in the RoHS guidelines effective June 30, 2008.

Freelin-Wade Co. is not liable for consequential or other damages, including, but not limited to personal injury, damage, loss or any other expenses directly or indirectly arising from the use of, or inability to use its products, either separately or in combination with other products. All other warranties expressed or implied, whether oral or written, including but not limited to warranties for fitness or merchantability for a particular purpose are expressly excluded.

Regards,

FREELIN-WADE CO. A Coilhose Pneumatics Company

Chris Robinson Plant Manager 503-434-5561

CR/alf



May 28, 2008

To Our Customer,

Freelin-Wade Co., A Collhose Pneumatics Company, certifies that our N11 tubing is produced from a nylon compound manufactured from material which is compliant with UL 94 flame rating of HB when tested under ASTM D635-06. This material contains a UV stabilizer. Additionally, this material is DEHP free.

This material is RoHS compliant for lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyls (PBB's), and polybrominated diphenyl ethers (PBDE's). This compliance continues to include the Deca-BDE requirement in the RoHS guidelines effective June 30, 2008.

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Regards,

FREELIN-WADE CO. A Collhose Pneumatics Company

Chris Robinson Plant Manager 503-434-5561

CR/alf



1730 NE Miller Street • McMinnville, Oregon 97128 Phone: 503-434-5561 • Fax: 503-472-1989 www.freelin-wade.com

TECHNICAL DATA SHEET



PUR95A

1730 NE Miller Street McMinnville, OR 97128 (503) 434-5561

		Ur	nits		
Total Physical Properties of Natural Resin	ASTM Test Method (Other)	U.S. Conventional	SI Metric	U.S. Conventional	SI Metric
General					-
Specific Gravity	D 792 (ISO 1183)			1.1	
Shore Hardness	D 2240 (ISO 868)	DS	cale	50	J
Taber Abrasion:	D 3489 (ISO 4649)				-
H-18, 1000-g Load, 1,000 Cycles			Loss	75	
Bayshore Resilience	D 2632	1	%	35)
Mold Shrinkage at 100-mil Thickness:	D 955 (ISO 2577)				0.0
Flow Direction		in/in (mm/mm)		0.008 0.008	
Cross-Flow Direction		<u>in/in (ñ</u>	nm/mm)	0.0	08
Mechanical				C 000	41.4
Tensile Strength	D 412 (ISO 37)	lb/in ²	MPa	6,000	
Tensile Strength at 50% Elongation	D 412 (ISO 37)	lb/in ²	MPa	1,750	12.1
Tensile Strength at 100% Elongation	D 412 (ISO 37)	lb/in ²	MPa	2,000	13.8
Tensile Strength at 300% Elongation	D 412 (ISO 37)	lb/in ²	МРа	4,000	27.6
Ultimate Elongation	D 412 (ISO 37)		%	40	-
Tear Strength, Die "C"	D 624 (ISO 34)	lbf/in	kNm	750	131.3
Flexural Modulus	D 790 (ISO 178)			c 000	46.0
158°F (70°C)		lb/in ²	MPa	6,800	46.9
73°F (23°C)		lb/in²	MPa	16,500	113.8
Compression Set:	D 395-B (ISO 815)			1	
As Molder (Post Cured)			.,	70 (403
22 Hours at 158°F (70°C)		%		70 (40) 20 (15)	
22 Hours at 73°F (23°C)		د. ا	%	20 (15)
Compressive Load:	D 575				
2% Deflection		lb/in ²	MPa	150	1.0
5% Deflection		lb/in ²	MPa	425	2.9
10% Deflection		lb/in ²	MPa	800	5.5
15% Deflection		lb/in ²	MPa	1,100	7.6
20% Deflection		lb/in ²	MPa	1,500	10.3
25% Deflection		lb/in ²	MPa	1,800	12.4
50% Deflection		lb/in ²	MPa	4,500	31.0
Thermal					
Coefficient of Linear Thermal					400 4 FOF
Expansion	D 696	in/in/°F	mm/mm/°C	7.3 E-05	123.1 E05
Low Temperature Brittle Point	D 746 (ISO 974)	٥F	°C	<-90	<-68
Glass Transition Temperature (Tg)	(DMA)#	°F	°C	-17	-27
Vicat Softening Temperature	D 1525 (ISO 306)	°F	°C	262	128

** Postcured 16 hrs at 230°F (110°C)

DMA-Dynamic Mechanical Analysis.

This information has been gathered from standard reference materials and/or test data that is believed to be accurate and reliable. Nothing herein shall be deemed to be a warranty or representation, express or implied, with respect to the use of such information or the use of the goods described for any particular purpose alone or in combination with other goods and/or processes, or that their use does not conflict with existing patent rights. No license is granted to practice any patented invention. It is offered solely for your consideration, investigation, and verification.

MATERIAL SAFETY DATA SHEET



PUR 95A

1730 NE Miller Street McMinnville, OR 97128 (503) 434-5561

Transportation Emergency

Emergency Phone (800) 424-9300

Non-Transportation Emergency

Emergency Phone (412) 923-1800

SECTION I - Chemical Product Identification

Product Name 95A Durometer Polyurethane Product Code PUR95A Chemical Family Aromatic thermoplastic polyurethane Chemical Name Polyurethane elastomer

SECTION II - Hazards Identification

EMERGENCY OVERVIEW

CAUTION! Color: Natural; Form: Pellets; Odor: Odorless; Melted product is flammable and produces intense heat and dense smoke during burning. May cause mechanical irritation (abrasion). Causes a slipping hazard if spilled. Toxic gases / fumes are given off during burning or thermal decomposition and may cause allergic skin and respiratory reaction. Contact with hot material will cause thermal burns.

Potential Health Effects

Primary Routes of Entry:

Inhalation; Skin contact; Eye contact Medical Conditions Aggravated by Exposure: Respiratory disorders HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE Acute Inhalation Thermoplastic Polyurethane (TPU) is generally non-hazardous under ambient

conditions. However, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential of the release of 4,4'diphenylmethane diisocyanate (MDI) vapors. Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore

PUR95A

throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills) has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible.

Chronic Inhalation

In the event of material decomposition due to exceeding the decomposition temperature of this product, release of MDI may occur. As a result of previous repeated overexposures or a single large dose, certain individuals may develop sensitization to diisocyanates (asthma or asthma-like symptoms) that may cause them to react to a later exposure to diisocyantes at levels well below the TLV or PEL. These symptoms, which can include chest tightness, wheezing, cough, shortness of breath or asthmatic attack, could be immediate or delayed up to several hours after exposure. Extreme asthmatic reactions can be life threatening. Similar to many nonspecific asthmatic responses, there are reports that once sensitized an individual can experience these symptoms upon exposure to dust, cold air or other irritants. This increased lung sensitivity can persist for weeks and in severe cases for several years. Sensitization can be permanent. Chronic overexposure to diisocyanates has also been reported to cause lung damage (including fibrosis, decrease in lung function) that may be permanent.

Acute Skin Contact

Contact with heated material can cause thermal burns.

Acute Eye Contact

Vapors released from thermal decomposition may cause irritation with symptoms of burning or tearing.

Carcinogenicity

No Carcinogenic substances as defined by IARC, NTP and/or OSHA.

SECTION III - Composition / Information on Ingredients

Hazardous Components

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

SECTION IV - First Aid Measures

Eye Contact

In case of contact, flush eyes with plenty of lukewarm water. Get medical attention if irritation develops.

Skin

Get medical attention if thermal burn occurs.

Inhalation

If inhaled, remove to fresh air.

Ingestion

Get medical attention.

Note To Physician

In the event of possible diisocyanate exposure due to thermal decomposition:

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill

antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision.

PUR95A

Skin: Treat symptomatically as for thermal burn.
Ingestion: Treat symptomatically.
Inhalation: Treatment is essentially symptomatic. An individual having a pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate.

SECTION V - Fire Fighting Measures

Extinguishing Media

Water; Foam; Dry chemical; **Special Fire Fighting Procedures** Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes. **Unusual Fire / Explosion Hazards**

Toxic and irritating gases / fumes may be given off during burning or thermal decomposition. Dust may form explosive mixtures with air.

SECTION VI - Accidental Release Measures

Spill or Leak Procedures

If molten, allow material to cool and place into an appropriate marked container for disposal.

SECTION VII - Handling and Storage

Storage Temperature

Handle in accordance with good industrial hygiene and safety practices. Wash thoroughly after handling. Avoid breathing dust. Containers should be kept tightly closed to prevent contamination. Material is hygroscopic and may absorb small amounts of atmospheric moisture. Protect equipment (e.g. storage bins, conveyors, dust collectors) with explosion vents.

SECTION VIII – Exposure Controls / Personal Protection

The following exposure limits do not apply to the product in its supplied form; however, when the product is heated (i.e., during processing or thermal decomposition conditions), there is a potential for the release of 4,4'-diphenylmethane diisocyanate (MDI) vapors.

4,4'-Diphenylmethane Diisocyanate (MDI) (101-68-8)

- US. ACGIH Threshold Limit Values
 - Time Weighted Average (TWA): 0.005 ppm
- US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
 - Ceiling Limit Value: 0.02 ppm, 0.2 mg/m3

Industrial Hygiene / Ventilation Measures

During normal processing, use general dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines. Special ventilation and personal protective equipment (PPE) is required to control exposure to potentially harmful decomposition products whenever a TPU is heated to temperatures above its decomposition temperature. Examples would include hot knife cutting, grinding or sawing.

Respiratory Protection

In the absence of sufficient general dilution or local exhaust ventilation, a NIOSH approved air-supplied respirator may be needed during die cleaning, high temperature processing, purging or when thermal decomposition is suspected. **Hand Protection**

Wear heat resistant gloves when handling molten material.

Eve Protection

Safety glasses with side-shields.

Skin and Body Protection

No special skin protection requirements during normal handling and use.

Additional Protective Measures

Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Purgings should be collected as small flat thin shapes or thin strands to allow for rapid cooling.

SECTION IX - Physical and Chemical Properties

SECTION X - Stability and Reactivity

Hazardous Reactions Hazardous polymerization does not occur. Stability Stable

Material to avoid None known. Conditions to avoid None known. Hazardous decomposition products By Fire and Thermal Decomposition: Carbon Dioxide; hydrogen cyanide, 4,4'-Diphenylmethane Diisocyanate (MDI), aldehydes, Carbon monoxide, Amines, nitriles, nitrogen oxides (NOx), hydrocarbons

SECTION XI - Toxicological Information

No information available.

SECTION XII - Ecological Information

No Information Available

SECTION XIII - Disposal Considerations

Waste Disposal Method

Waste disposal should be in accordance with existing federal, state and local environmental control laws.

SECTION XIV - Transportation Information

Land Transport (DOT) Non-Regulated Sea Transport (IMDG) Non-Regulated Air Transport (ICAO/IATA) Non-Regulated

SECTION XV - Regulatory Information

United States Federal Regulations

OSHA Hazcom Standard Rating: Non-Hazardous US Toxic Substances Control Act: Listed on the TSCA Inventory US EPA CERCLA Hazardous Substances (40 CFR 302): <u>Components</u> None					
SARA Section 311 / 312 Hazard Categories Non-Hazardous under Section 311 / 312					
US EPA Emergency Planning and Community Right-TO-Know Act (EPCRA)					
SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):					
Components					
None					
US EPA Emergency Planning and Community Right-TO-Know Act (EPCRA) SARA Title III					
Section 313 Toxic Chemicals (40 CFR 372.65) – Supplier Notification					
Required Components					
None					
US EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261):					
If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24)					
State Right-To-Know Information					
The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements, you should contact the appropriate agency in your state.					
Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:Weight %ComponentsCAS-No.					
>=95% Polyurethane Polyether Elastomer 9018-04-6					
California Prop 65:					
To the best of our knowledge, this product does not contain any of the listed chemicals, which the State of California has found to cause cancer, birth defects or other reproductive harm.					

Section XVI - Other Information

HMIS RATINGS		Health 0	Flam	imability 1	Reactivity 0
0=Minimal *=Chronic Health	1=Slight Hazard	2=M	oderate	3=Serious	4=Severe

Approval Date 11/2006

Supersedes Date 9/2006

Freelin-Wade believes that the information and recommendations contained herein (including data and statements) are accurate as of the data hereof. **NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OR MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION CONTAINED HEREIN.** The information provided herein relates only to the specific product designated and may not be valid where such product is used in the combination with any other materials or in any process. Further, since the conditions and methods of use are beyond the control of Freelin-Wade, Freelin-Wade expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

MATERIAL SAFETY DATA SHEET



N11

1730 NE Miller Street McMinnville, OR 97128 (503) 434-5561

Transportation Emergency

Emergency Phone (800) 424-9300

Information Phone (503) 434-5561

SECTION I - Chemical Product Identification

Product Code N11 Chemical Family Polyamide Formula Proprietary

SECTION II – Composition / Information on Ingredients

Chemical Name	CAS Number	Typical Weight %	OSHA
Polyamide 11	25587-80-8	>83	N
N-Butylbenzenesulfonamide	3622-84-2	<15	Y

The substances marked with a "Y" in the OSHA column are identified as hazardous chemicals according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

While this material is not classified as hazardous under Federal OSHA regulations, this MSDS contains valuable information critical to the safe handling and proper use of this product. This MSDS should be retained and available for employees and other users of this product.

The components of this product are all on the TSCA Inventory List.

SECTION III - Hazards Identification

Emergency Overview

Translucent Pellets

CAUTION!

MELT PROCESSING RELEASES VAPORS WHICH MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. A component of this material is considered to be slightly toxic if swallowed and moderately irritating to skin and eyes. At elevated processing

temperatures, this component can produce vapors that are irritating to the upper respiratory tract and moderately toxic if inhaled. Under normal processing conditions, this material will release fume or vapor. Components of these releases may vary with processing time and temperatures. These process releases may produce eye, skin and / or respiratory tract irritation and, with repeated or prolonged exposures, nausea, drowsiness, headache and weakness.

SECTION IV - First Aid Measures

In Case of Contact

Flush the area with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if irritation develops and persists. Thoroughly clean shoes before reuse.

If Swallowed

Induce vomiting immediately as directed by medical personnel. Get medical attention. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. **If Inhaled**

Remove to fresh air.

SECTION V - Fire Fighting Measures

Fire and Explosive Properties

Auto Ignition Tempe	erature	NE	
Flash Point		NE	Flash Point Method
Flammable Limits	Upper	NA	
	Lower	NA	

Extinguishing Media

Use water spray, carbon dioxide, foam or dry chemical.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

Fire and Explosion Hazard

When burned, the following hazardous products of combustion can occur: Oxides of carbon and nitrogen

SECTION VI - Accidental Release Measures

In Case of Spill or Leak

Contain spill. Sweep or scoop up and remove to suitable container. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

SECTION VII - Handling and Storage

Handling

Avoid contact. Avoid breathing processing fumes or vapors. Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing. Process using adequate ventilation.

Storage

Store in a cool, dry place. This material is not hazardous under normal storage conditions; however, material should be stored in closed containers, in a secure area to prevent container damage and subsequent spillage.

SECTION VIII – Exposure Controls / Personal Protection

Engineering Controls

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposure. Dilution ventilation is acceptable, but local mechanical exhaust ventilation preferred, if practical, at sources of air contamination such as open process equipment.

Eve / Face Protection

Use good industrial practice to avoid eye contact. Processing of this product releases vapors or fumes which may cause eye irritation. Where eye contact may be likely, wear chemical goggles and have eye-flushing equipment available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing protective gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Avoid breathing processing fumes or vapors. Where airborne exposure is likely, use NIOSH approved respiratory protective equipment appropriate to the material and/or its components and substances released during processing. If exposures cannot be kept to a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitation specification by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full-face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

The components of this product have no established Airborne Exposure Guidelines.

SECTION IX - Physical and Chemical Properties

Appearance / Odor:Translucent pelletspH:1.0 - 1.5Specific Gravity:1.0 - 1.5Vapor Pressure:NEVapor Density:NEMelting Point:175 - 190 deg C

Freezing Point: Boiling Point: Solubility in Water: **Evaporation Rate** Percent Volatile

NE Negligible NE NE

SECTION X - Stability and Reactivity

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Hazardous Polymerization Does not occur. Incompatibility Contact with acids and strong oxidizing agents may cause a low energy release. Hazardous decomposition products Oxides of carbon and nitrogen can be liberated at high temperatures.

SECTION XI - Toxicological Information

Data on this material and/or its components are summarized below. Polyamide 11 - Single exposure (acute) studies indicate that this material is nonirritating to rabbit skin (4-hr exposure; 0/8). No genetic changes were observed in tests using bacteria.

N,N-Butylbenzenesulfonamide - Single exposure (acute) studies indicate that this material is slightly toxic if swallowed (rat LD50 2,050 mg/kg) and moderately toxic at elevated temperatures if inhaled (rat 4-hr approximate lethal concentration 0.385 mg/I when heated to the temperature of 564 deg F). No genetic changes were observed in tests using bacteria.

SECTION XII - Ecological Information

Ecotoxicological Information

No ecological effect studies have been conducted on this material and no information was found in a search of the scientific literature. Under normal conditions of use the component(s) of this material are contained within the polymer matrix. Although ecological exposure to this material is anticipated to be minimal, the data are summarized below.

N.N-Butylbenzenesulfonamide.

At a concentration of 5 ppm, this material had no effect on bluegill sunfish during a 24-hour static toxicity test. It was reported to cause death or obvious distress in rainbow trout after 2 hours of exposure and in sea lamprey larvae after 14 hours exposure.

Chemical Fate Information

No data are available.

SECTION XIII - Disposal Considerations

Waste Disposal

Recover, reclaim or recycle when practical. Dispose of in an approved landfill if allowed locally. Comply with federal, state, and local regulations. Dispose of in a permitted waste management facility if incineration or landfill is not practical.

NOTE: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

DOT Name Not regulated DOT Technical Name	DOT Hazard Class	UN Number
DOT Packing Group PG	PG	

SECTION XV - Regulatory Information

Hazard Categories Under Criteria of S Immediate (Acute) Health	SARA	Title III Rules (40 CFR Pa N	art 370)		
Delayed (Chronic) Health		Ν			
Fire		Ν			
Reactive		Ν			
Sudden Release of Pressure		Ν			
The components of this product are all on the TSCA Inventory List. Ingredient Related Regulatory Information					
SARA Reportable Quantities		CERCLA RQ	SARA TPQ		
N-Butylbenzenesulfonamide	NE				
Polyamide 11	NE				

Section XVI - Other Information

Approval Date

10/2004

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