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POLYPROPYLENE

ITEM #	DESCRIPTION	SHEET SIZE
300-162N	1/16" Polypropylene Natural	24 x 48
300-163N	1/16" Polypropylene Natural	32 x 48
300-164N	1/16" Polypropylene Natural	48 x 48
300-168N	1/16" Polypropylene Natural	48 x 96
300-332N	3/32" Polypropylene Natural	24 x 48
300-333N	3/32" Polypropylene Natural	32 x 48
300-334N	3/32" Polypropylene Natural	48 x 48
300-338N	3/32" Polypropylene Natural	48 x 96
300-182N	1/8" Polypropylene Natural	24 x 48
300-183N	1/8" Polypropylene Natural	32 x 48
300-184N	1/8" Polypropylene Natural	48 x 48
300-188N	1/8" Polypropylene Natural	48 x 96
300-182F	1/8" Polypropylene Beige	24 x 48
300-183F	1/8" Polypropylene Beige	32 x 48
300-184F	1/8" Polypropylene Beige	48 x 48
300-188F	1/8" Polypropylene Beige	48 x 96
300-182K	1/8" Polypropylene Black	24 x 48
300-183K	1/8" Polypropylene Black	32 x 48
300-184K	1/8" Polypropylene Black	48 x 48
300-188K	1/8" Polypropylene Black	48 x 96
300-182B	1/8" Polypropylene Brown	24 x 48
300-183B	1/8" Polypropylene Brown	32 x 48
300-184B	1/8" Polypropylene Brown	48 x 48
300-188B	1/8" Polypropylene Brown	48 x 96
300-532N	5/32" Polypropylene Natural	24 x 48
300-533N	5/32" Polypropylene Natural	32 x 48
300-534N	5/32" Polypropylene Natural	48 x 48
300-538N	5/32" Polypropylene Natural	48 x 96
300-362N	3/16" Polypropylene Natural	24 x 48
300-363N	3/16" Polypropylene Natural	32 x 48
300-364N	3/16" Polypropylene Natural	48 x 48
300-368N	3/16" Polypropylene Natural	48 x 96
300-362F	3/16" Polypropylene Beige	24 x 48
300-363F	3/16" Polypropylene Beige	32 x 48
300-364F	3/16" Polypropylene Beige	48 x 48
300-368F	3/16" Polypropylene Beige	48 x 96
300-362K	3/16" Polypropylene Black	24 x 48
300-363K	3/16" Polypropylene Black	32 x 48
300-364K	3/16" Polypropylene Black	48 x 48
300-368K	3/16" Polypropylene Black	48 x 96

POLYPROPYLENE

ITEM #	DESCRIPTION	SHEET SIZE
300-362B	3/16" Polypropylene Brown	24 x 48
300-363B	3/16" Polypropylene Brown	32 x 48
300-364B	3/16" Polypropylene Brown	48 x 48
300-368B	3/16" Polypropylene Brown	48 x 96
300-141N	1/4" Polypropylene Natural	12 x 12
300-146N	1/4" Polypropylene Natural	16 x 16
300-142N	1/4" Polypropylene Natural	24 x 48
300-143N	1/4" Polypropylene Natural	32 x 48
300-144N	1/4" Polypropylene Natural	48 x 48
300-148N	1/4" Polypropylene Natural	48 x 96
300-142K	1/4" Polypropylene Black	24 x 48
300-143K	1/4" Polypropylene Black	32 x 48
300-144K	1/4" Polypropylene Black	48 x 48
300-148K	1/4" Polypropylene Black	48 x 96
300-142F	1/4" Polypropylene Beige	24 x 48
300-143F	1/4" Polypropylene Beige	32 x 48
300-144F	1/4" Polypropylene Beige	48 x 48
300-148F	1/4" Polypropylene Beige	48 x 96
300-381N	3/8" Polypropylene Natural	12 x 12
300-386N	3/8" Polypropylene Natural	16 x 16
300-382N	3/8" Polypropylene Natural	24 x 48
300-383N	3/8" Polypropylene Natural	32 x 48
300-384N	3/8" Polypropylene Natural	48 x 48
300-388N	3/8" Polypropylene Natural	48 x 96
300-121N	1/2" Polypropylene Natural	12 x 12
300-126N	1/2" Polypropylene Natural	16 x 16
300-122N	1/2" Polypropylene Natural	24 x 48
300-123N	1/2" Polypropylene Natural	32 x 48
300-124N	1/2" Polypropylene Natural	48 x 48
300-128N	1/2" Polypropylene Natural	48 x 96
300-581N	5/8" Polypropylene Natural	12 x 12
300-586N	5/8" Polypropylene Natural	16 x 16
300-582N	5/8" Polypropylene Natural	24 x 48
300-583N	5/8" Polypropylene Natural	32 x 48
300-584N	5/8" Polypropylene Natural	48 x 48
300-588N	5/8" Polypropylene Natural	48 x 96
300-341N	3/4" Polypropylene Natural	12 x 12
300-346N	3/4" Polypropylene Natural	16 x 16
300-342N	3/4" Polypropylene Natural	24 x 48
300-343N	3/4" Polypropylene Natural	32 x 48
300-344N	3/4" Polypropylene Natural	48 x 48
300-348N	3/4" Polypropylene Natural	48 x 96

FEATURES	CHARACTERISTICS
Translucent white color (transparent at working temp.) • Vacuum formable • Not cold formable • Self-adhesive when hot • Very rigid • High degree of memory	• Will not stress whiten • Tends to crack, especially in cold temperatures • Notch sensitive, edges must be smooth • May distort if removed from mold too rapidly • Leave on mold overnight, air cool with fan, or immerse in water
USAGE	TEMPERATURE RANGE
• Dynamic lower extremity orthoses • Posterior leafspring AFO's • May also be used for spinal and upper extremity orthosis	400° - 425° F (205° - 232° C)

MATERIAL SAFETY DATA SHEET - POLYPROPYLENE

I. General Information

• **Chemical Name & Synonyms**

Polypropylene

• **Trade Name & Synonyms**

Natural Homopolymer Polypropylene

• **Chemical Family**

Homopolymer Polypropylene

• **Formula**

[ch(ch₃)ch₂-]

• **Proper DOT Shipping Name**

N/A

• **DOT Hazard Classification**

N/A

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

II. Ingredients

Principal Components	Percent	Threshold Limit Value (Units)
Polypropylene (9003-07-0)	>90%	10mg/m ³ (total dust)

III. Physical Data

• **Boiling Point (Deg. F.)**

N/A

• **Specific Gravity (H₂O=1)**

.90-.91

• **Vapor Pressure (mm Hg)**

N/A

• **Percent Volatile By Volume (%)**

• **Vapor Density (Air=1)**

N/A

• **Evaporation Rate (Air=1)**

N/A

• **Solubility in Water**

Negligible

• **pH**

N/A

• **Appearance & Odor**

Opaque, or white, solid, no odor

IV. Fire & Explosion Hazard Data

• **Flash Point (Test Method)**

• **Auto Ignition Temperature**

• **Flammable Limits**

N/A

• **LEL**

N/A

• **UEL**

N/A

• **Extinguishing Media**

Water, Foam, Carbon Dioxide, Dry Chemical

• **Special Fire Fighting Procedures**

Slow burning plastic which emits a dense black smoke. Firefighters should wear a self-contained breathing apparatus and protective clothing.

• **Unusual Fire & Explosion Hazards** - Dust is flammable when finely divided (less than 200 mesh) and suspended in air. Combustion products may be hazardous.

V. Health Hazard Data

- | | |
|---|---|
| • OSHA Permissible Exposure Limit
15 mg/m ³ total dust, 5mg/m ³ respirable dust | • ACGIH Threshold Limit Value
10 mg/m ³ total dust |
| • Carcinogen - NTP Program
NO | • Carcinogen - IARC Program
NO |
- **Symptoms of Exposure**
Polypropylene heated to 700 deg. F can irritate the respiratory tract.
- **Medical Conditions Aggravated by Exposure**
None known, however, seek medical attention if constant irritation occurs. If thermal decomposition occurs, upper respiratory, eye, nose, and throat irritation may result.
- **Primary Route(s) of Entry**
Inhalation of particulates
- **Emergency First Aid**
Molten material. If molten material comes in contact with the skin, cool under running water. Do not attempt to remove the molten material from the skin. Get medical attention.

VI. Reactivity Data

- | | |
|---|---|
| • Stability <input type="checkbox"/> Unstable
<input checked="" type="checkbox"/> Stable | • Conditions to Avoid
None Known |
| • Incompatibility
Hazardous <input type="checkbox"/> May Occur
Polymerization <input checked="" type="checkbox"/> Will Not Occur | • Materials to Avoid
Strong oxidizing agents.
• Conditions to Avoid
None Known |
- **Hazardous Decomposition Products**
Carbon Monoxide, Carbon Dioxide, organic oxidation products, acrid smoke, and fumes.

VII. Environmental Protection Procedures

- **Spill Response**
Sweep up for disposal or reuse.
- **Waste Disposal Method**
Incineration or landfill - dispose of in accordance with Federal, State, or Local regulations.

VIII. Special Protection Information

- | | |
|---|--------------------------|
| • Eye Protection
Glasses with side shields. | • Skin Protection |
|---|--------------------------|
- **Respiratory Protection (Specific Type)** - NIOSH approved dust respirator recommended. If material is being burned, wear an organic respirator.
- **Ventilation Recommended** - Local ventilation in dusty conditions, or if thermal decomposition occurs.
- **Other Protection**
Gloves and protective garments when handling molten material.

IX. Special Precautions

- **Hygienic Practices In Handling & Storage**
Wash with soap and water.
- **Precautions for Repair & Maintenance of Contaminated Equipment**
Eliminate ignition sources.
- **Other Precautions** - Avoid excess breathing of vapors, fumes, or smoke that may be released during thermal processing. Store in a sprinkler protected warehouse.

COPOLYMER POLYPROPYLENE

ITEM #	DESCRIPTION	SHEET SIZE
301-162N	1/16" Copolymer Natural	24 x 48
301-163N	1/16" Copolymer Natural	32 x 48
301-164N	1/16" Copolymer Natural	48 x 48
301-168N	1/16" Copolymer Natural	48 x 96
301-332N	3/32" Copolymer Natural	24 x 48
301-333N	3/32" Copolymer Natural	32 x 48
301-334N	3/32" Copolymer Natural	48 x 48
301-338N	3/32" Copolymer Natural	48 x 96
301-182N	1/8" Copolymer Natural	24 x 48
301-183N	1/8" Copolymer Natural	32 x 48
301-184N	1/8" Copolymer Natural	48 x 48
301-188N	1/8" Copolymer Natural	48 x 96
301-182F	1/8" Copolymer Beige	24 x 48
301-183F	1/8" Copolymer Beige	32 x 48
301-184F	1/8" Copolymer Beige	48 x 48
301-188F	1/8" Copolymer Beige	48 x 96
301-182K	1/8" Copolymer Black	24 x 48
301-183K	1/8" Copolymer Black	32 x 48
301-184K	1/8" Copolymer Black	48 x 48
301-188K	1/8" Copolymer Black	48 x 96
301-182B	1/8" Copolymer Brown	24 x 48
301-183B	1/8" Copolymer Brown	32 x 48
301-184B	1/8" Copolymer Brown	48 x 48
301-188B	1/8" Copolymer Brown	48 x 96
301-182R	1/8" Copolymer Red	24 x 48
301-183R	1/8" Copolymer Red	32 x 48
301-184R	1/8" Copolymer Red	48 x 48
301-188R	1/8" Copolymer Red	48 x 96
301-182BLU	1/8" Copolymer Blue	24 x 48
301-183BLU	1/8" Copolymer Blue	32 x 48
301-184BLU	1/8" Copolymer Blue	48 x 48
301-188BLU	1/8" Copolymer Blue	48 x 96
301-182NP	1/8" Copolymer Neon Pink	24 x 48
301-183NP	1/8" Copolymer Neon Pink	32 x 48
301-184NP	1/8" Copolymer Neon Pink	48 x 48
301-188NP	1/8" Copolymer Neon Pink	48 x 96
301-182LP	1/8" Copolymer Light Pink	24 x 48
301-183LP	1/8" Copolymer Light Pink	32 x 48
301-184LP	1/8" Copolymer Light Pink	48 x 48
301-188LP	1/8" Copolymer Light Pink	48 x 96
301-182SB	1/8" Copolymer Sky Blue	24 x 48
301-183SB	1/8" Copolymer Sky Blue	32 x 48
301-184SB	1/8" Copolymer Sky Blue	48 x 48
301-188SB	1/8" Copolymer Sky Blue	48 x 96

COPOLYMER POLYPROPYLENE

ITEM #	DESCRIPTION	SHEET SIZE
301-182PUR	1/8" Copolymer Purple	24 x 48
301-183PUR	1/8" Copolymer Purple	32 x 48
301-184PUR	1/8" Copolymer Purple	48 x 48
301-188PUR	1/8" Copolymer Purple	48 x 96
301-182Y	1/8" Copolymer Yellow	24 x 48
301-183Y	1/8" Copolymer Yellow	32 x 48
301-184Y	1/8" Copolymer Yellow	48 x 48
301-188Y	1/8" Copolymer Yellow	48 x 96
301-532N	5/32" Copolymer Natural	24 x 48
301-533N	5/32" Copolymer Natural	32 x 48
301-534N	5/32" Copolymer Natural	48 x 48
301-538N	5/32" Copolymer Natural	48 x 96
301-362N	3/16" Copolymer Natural	24 x 48
301-363N	3/16" Copolymer Natural	32 x 48
301-364N	3/16" Copolymer Natural	48 x 48
301-368N	3/16" Copolymer Natural	48 x 96
301-362F	3/16" Copolymer Beige	24 x 48
301-363F	3/16" Copolymer Beige	32 x 48
301-364F	3/16" Copolymer Beige	48 x 48
301-368F	3/16" Copolymer Beige	48 x 96
301-362B	3/16" Copolymer Brown	24 x 48
301-363B	3/16" Copolymer Brown	32 x 48
301-364B	3/16" Copolymer Brown	48 x 48
301-368B	3/16" Copolymer Brown	48 x 96
301-362R	3/16" Copolymer Red	24 x 48
301-363R	3/16" Copolymer Red	32 x 48
301-364R	3/16" Copolymer Red	48 x 48
301-368R	3/16" Copolymer Red	48 x 96
301-362BLU	3/16" Copolymer Blue	24 x 48
301-363BLU	3/16" Copolymer Blue	32 x 48
301-364BLU	3/16" Copolymer Blue	48 x 48
301-368BLU	3/16" Copolymer Blue	48 x 96
301-362K	3/16" Copolymer Black	24 x 48
301-363K	3/16" Copolymer Black	32 x 48
301-364K	3/16" Copolymer Black	48 x 48
301-368K	3/16" Copolymer Black	48 x 96
301-362NP	3/16" Copolymer Neon Pink	24 x 48
301-363NP	3/16" Copolymer Neon Pink	32 x 48
301-364NP	3/16" Copolymer Neon Pink	48 x 48
301-368NP	3/16" Copolymer Neon Pink	48 x 96
301-362LP	3/16" Copolymer Light Pink	24 x 48
301-363LP	3/16" Copolymer Light Pink	32 x 48
301-364LP	3/16" Copolymer Light Pink	48 x 48
301-368LP	3/16" Copolymer Light Pink	48 x 96

COPOLYMER POLYPROPYLENE

ITEM #	DESCRIPTION	SHEET SIZE
301-362SB	3/16" Copolymer Sky Blue	24 x 48
301-363SB	3/16" Copolymer Sky Blue	32 x 48
301-364SB	3/16" Copolymer Sky Blue	48 x 48
301-368SB	3/16" Copolymer Sky Blue	48 x 96
301-362PUR	3/16" Copolymer Purple	24 x 48
301-363PUR	3/16" Copolymer Purple	32 x 48
301-364PUR	3/16" Copolymer Purple	48 x 48
301-368PUR	3/16" Copolymer Purple	48 x 96
301-362Y	3/16" Copolymer Yellow	24 x 48
301-363Y	3/16" Copolymer Yellow	32 x 48
301-364Y	3/16" Copolymer Yellow	48 x 48
301-368Y	3/16" Copolymer Yellow	48 x 96
301-142N	1/4" Copolymer Natural	24 x 48
301-143N	1/4" Copolymer Natural	32 x 48
301-144N	1/4" Copolymer Natural	48 x 48
301-148N	1/4" Copolymer Natural	48 x 96
301-142F	1/4" Copolymer Beige	24 x 48
301-143F	1/4" Copolymer Beige	32 x 48
301-144F	1/4" Copolymer Beige	48 x 48
301-148F	1/4" Copolymer Beige	48 x 96
301-381N	3/8" Copolymer Natural	12 x 12
301-386N	3/8" Copolymer Natural	16 x 16
301-382N	3/8" Copolymer Natural	24 x 48
301-383N	3/8" Copolymer Natural	32 x 48
301-384N	3/8" Copolymer Natural	48 x 48
301-388N	3/8" Copolymer Natural	48 x 96
301-121N	1/2" Copolymer Natural	12 x 12
301-126N	1/2" Copolymer Natural	16 x 16
301-122N	1/2" Copolymer Natural	24 x 48
301-123N	1/2" Copolymer Natural	32 x 48
301-124N	1/2" Copolymer Natural	48 x 48
301-128N	1/2" Copolymer Natural	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Translucent white color (transparent at working temp.) • Vacuum formable • Self-adhesive when hot • Rigidity between Polypropylene and MPE 	<ul style="list-style-type: none"> • Will stress whiten (bruise) • Less subject to cracking than polypropylene • Usually identified by white shear stress line on cut surface • May distort if removed from mold too rapidly • Leave on mold overnight, air cool with fan, or immerse in water
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Lower extremity orthoses when greater flexibility is required and colder climate • Spinal and upper extremity orthoses 	400° - 425°F (205° - 232°C)

MATERIAL SAFETY DATA SHEET - COPOLYMER POLYPROPYLENE

I. General Information

• Chemical Name & Synonyms Polypropylene	• Trade Name & Synonyms Co-polymer Polypropylene
• Chemical Family Copolymer Polypropylene	• Formula [ch(ch3)ch2-]
• Proper DOT Shipping Name N/A	• DOT Hazard Classification N/A

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

II. Ingredients

Principal Components	Percent	Threshold Limit Value (Units)
Polypropylene (9003-07-0)	>90%	10mg/m3 (total dust)
Polyethylene (9002-88-4)	<10%	10mg/m3 (total dust)

III. Physical Data

• Boiling Point (Deg. F.) N/A	• Specific Gravity (H₂O=1) .90-.91
• Vapor Pressure (mm Hg) N/A	• Percent Volatile By Volume (%)
• Vapor Density (Air=1) N/A	• Evaporation Rate (Air=1) N/A
• Solubility in Water Negligible	• pH N/A
• Appearance & Odor Opaque, or white, solid, no odor	

IV. Fire & Explosion Hazard Data

• Flash Point (Test Method) >329°C (Setchkin)	• Auto Ignition Temperature >357°C (Setchkin)	
• Flammable Limits N/A	• LEL N/A	• UEL N/A
• Extinguishing Media Water, Foam, Carbon Dioxide, Dry Chemical		
• Special Fire Fighting Procedures Slow burning plastic which emits a dense black smoke. Firefighters should wear a self-contained breathing apparatus and protective clothing.		
• Unusual Fire & Explosion Hazards - Dust is flammable when finely divided (less than 200 mesh) and suspended in air. Combustion products may be hazardous.		

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V. Health Hazard Data

- | | |
|---|---|
| • OSHA Permissible Exposure Limit
15 mg/m ³ total dust, 5 mg/m ³ respirable dust | • ACGIH Threshold Limit Value
10 mg/m ³ total dust |
| • Carcinogen - NTP Program
NO | • Carcinogen - IARC Program
NO |
| • Symptoms of Exposure
Polypropylene heated to 700 deg. F can irritate the respiratory tract. | |
| • Medical Conditions Aggravated by Exposure
None known, however, seek medical attention if constant irritation occurs. If thermal decomposition occurs, upper respiratory, eye, nose, and throat irritation may result. | |
| • Primary Route(s) of Entry
Inhalation of particulates | |
| • Emergency First Aid
Molten material. If molten material comes in contact with the skin, cool under running water. Do not attempt to remove the molten material from the skin. Get medical attention.. | |

VI. Reactivity Data

- | | |
|---|---|
| • Stability <u> </u> Unstable
<u> X </u> Stable | • Conditions to Avoid
None Known |
| • Incompatibility
Hazardous <u> </u> May Occur
Polymerization <u> X </u> Will Not Occur | • Materials to Avoid
Strong oxidizing agents.
• Conditions to Avoid
None Known |
| • Hazardous Decomposition Products
Carbon Monoxide, Carbon Dioxide, organic oxidation products, acrid smoke, and fumes. | |

VII. Special Protection Information

- | | |
|--|--------------------------|
| • Eye Protection
Glasses with side shields. | • Skin Protection |
| • Respiratory Protection (Specific Type) - NIOSH approved dust respirator recommended. If material is being burned, wear an organic respirator. | |
| • Ventilation Recommended - Local ventilation in dusty conditions, or if thermal decomposition occurs. | |
| • Other Protection
Gloves and protective garments when handling molten material. | |

VIII. Environmental Protection Procedures

- | |
|--|
| • Spill Response
Sweep up for disposal or reuse. |
| • Waste Disposal Method
Incineration or landfill - dispose of in accordance with Federal, State, or Local regulations. |

IX. Special Precautions

- | |
|--|
| • Hygienic Practices In Handling & Storage
Wash with soap and water. |
| • Precautions for Repair & Maintenance of Contaminated Equipment
Eliminate ignition sources. |
| • Other Precautions - Avoid excess breathing of vapors, fumes, or smoke that may be released during thermal processing. Store in a sprinkler protected warehouse. |

LOW DENSITY POLYETHYLENE (LDPE)

ITEM #	DESCRIPTION	SHEET SIZE
302-132N	1/32" LDPE Natural	24 x 48
302-133N	1/32" LDPE Natural	32 x 48
302-134N	1/32" LDPE Natural	48 x 48
302-138N	1/32" LDPE Natural	48 x 96
302-162N	1/16" LDPE Natural	24 x 48
302-163N	1/16" LDPE Natural	32 x 48
302-164N	1/16" LDPE Natural	48 x 48
302-168N	1/16" LDPE Natural	48 x 96
302-182N	1/8" LDPE Natural	24 x 48
302-183N	1/8" LDPE Natural	32 x 48
302-184N	1 8" LDPE Natural	48 x 48
302-188N	1/8" LDPE Natural	48 x 96
302-532N	5/32" LDPE Natural	24 x 48
302-533N	5/32" LDPE Natural	32 x 48
302-534N	5/32" LDPE Natural	48 x 48
302-538N	5/32" LDPE Natural	48 x 96
302-362N	3/16" LDPE Natural	24 x 48
302-363N	3/16" LDPE Natural	32 x 48
302-364N	3/16" LDPE Natural	48 x 48
302-368N	3/16" LDPE Natural	48 x 96
302-362F	3/16" LDPE Beige	24 x 48
302-363F	3/16" LDPE Beige	32 x 48
302-364F	3/16" LDPE Beige	48 x 48
302-368F	3/16" LDPE Beige	48 x 96
302-141N	1/4" LDPE Natural	12 x 12
302-146N	1/4" LDPE Natural	16 x 16
302-142N	1/4" LDPE Natural	24 x 48
302-143N	1/4" LDPE Natural	32 x 48
302-144N	1/4" LDPE Natural	48 x 48
302-148N	1/4" LDPE Natural	48 x 96
302-121N	1/2" LDPE Natural	12 x 12
302-126N	1/2" LDPE Natural	16 x 16
302-122N	1/2" LDPE Natural	24 x 48
302-123N	1/2" LDPE Natural	32 x 48
302-124N	1/2" LDPE Natural	48 x 48
302-128N	1/2" LDPE Natural	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Translucent white color (transparent at working temp.) • Vacuum formable • Not cold formaable • Self-adhesive when hot • Minimal rigidity • Moderate degree of memory 	<ul style="list-style-type: none"> • Considerable shrinking when cooling • May tear after a period of time when under stress • Easily stretched when hot
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Spinal orthoses where maximum rigidity is not a concern • Upper extremity orthoses • Prosthetic flexible sockets 	275° - 400°F (135° - 205°C)

MATERIAL SAFETY DATA SHEET - LOW DENSITY POLYETHYLENE

I. General Information

• Chemical Name & Synonyms Low Density Polyethylene	• Trade Name & Synonyms Low Density Polyethylene
• Chemical Family Low Density Polyethylene	• Formula (ch ₂ -ch ₂) _n
• Proper DOT Shipping Name N/A	• DOT Hazard Classification N/A

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

II. Ingredients

Principal Hazardous Components	Percent	Threshold Limit Value (Units)
Polyethylene (CAS 9002-88-4)	>99%	10 mg/m ³ (total dust)

III. Physical Data

• Boiling Point (Deg. F.) N/A	• Specific Gravity (H₂O=1) .94-.97
• Vapor Pressure (mm Hg) N/A	• Percent Volatile By Volume (%)
• Vapor Density (Air=1) N/A	• Evaporation Rate (Air=1) N/A
• Solubility in Water Negligible	• pH N/A
• Appearance & Odor Translucent solid with waxy odor	

IV. Fire & Explosion Hazard Data

• Flash Point (Test Method)	• Auto Ignition Temperature	
• Flammable Limits N/A	• LEL N/A	• UEL N/A
• Extinguishing Media Water, Foam, Carbon Dioxide, Dry Chemical, Synthetic Foams, Alcohol Resistant Foams		

• **Special Fire Fighting Procedures**
Soak thoroughly with water to cool and prevent re-ignition. The smoke can contain polymer fragments of varying composition, in addition to unidentified toxic and/or irritating compounds.

• **Unusual Fire & Explosion Hazards**
Combustion by-products include, but are not limited to, carbon dioxide, carbon monoxide, and aldehydes.

LDPE: 1 of 2

V. Health Hazard Data

- | | |
|---|--|
| • OSHA Permissible Exposure Limit
15 mg/m ³ total dust, 5 mg/m ³ respirable dust | • ACGIH Threshold Limit Value
10 mg/m ³ |
| • Carcinogen - NTP Program
NO | • Carcinogen - IARC Program
NO |
| • Symptoms of Exposure
None Known | |
| • Medical Conditions Aggravated by Exposure
None known, however, seek medical attention if constant irritation occurs. If thermal decomposition occurs, upper respiratory, eye, nose, and throat irritation may result. | |
| • Primary Route(s) of Entry
Inhalation of particulates | |
| • Emergency First Aid
Molten material. If molten material comes in contact with the skin, cool under running water. Do not attempt to remove the molten material from the skin. Get medical attention. | |

VI. Reactivity Data

- | | |
|---|---|
| • Stability <u> </u> Unstable
<u> X </u> Stable | • Conditions to Avoid
None Known |
| • Incompatibility
Hazardous <u> </u> May Occur
Polymerization <u> X </u> Will Not Occur | • Materials to Avoid
Strong oxidizing agents.
• Conditions to Avoid
None Known |
| • Hazardous Decomposition Products
Carbon Monoxide, Carbon Dioxide, selected Alkanes and Aldehydes including Acrolein and Formaldehyde. | |

VII. Environmental Protection Procedures

- **Spill Response**
Sweep up for disposal or reuse.
- **Waste Disposal Methods**
Incineration or landfill - dispose of in accordance with Federal, State, or Local regulations.

VIII. Special Protection Information

- | | |
|--|--|
| • Eye Protection
Glasses with side shields in dusty conditions. | • Skin Protection
Normally not needed. |
| • Respiratory Protection (Specific Type) - NIOSH approved dust respirator recommended. If material is being burned, wear an organic respirator. | |
| • Ventilation Recommended - Local ventilation in dusty conditions, or if thermal decomposition occurs. | |
| • Other Protection
Gloves and protective garments when handling molten material. | |

IX. Special Precautions

- **Hygienic Practices In Handling & Storage**
Wash with soap and water.
- **Precautions for Repair & Maintenance of Contaminated Equipment**
Eliminate ignition sources.
- **Other Precautions** - Store in a sprinkler protected warehouse. Since Low Density is a polyethylene, it will burn with a hot flame if ignited. Avoid contact with ignition sources such as open flames. Keep a fire extinguisher near if welding is done in the area of Low Density Polyethylene. If a heat source is present, keep the area well ventilated.

HIGH DENSITY POLYETHYLENE (HDPE)

ITEM #	DESCRIPTION	SHEET SIZE
303-182N	1/8" HDPE Natural	24 x 48
303-183N	1/8" HDPE Natural	32 x 48
303-184N	1/8" HDPE Natural	48 x 48
303-188N	1/8" HDPE Natural	48 x 96
303-182F	1/8" HDPE Beige	24 x 48
303-183F	1/8" HDPE Beige	32 x 48
303-184F	1/8" HDPE Beige	48 x 48
303-188F	1/8" HDPE Beige	48 x 96
303-532N	5/32" HDPE Natural	24 x 48
303-533N	5/32" HDPE Natural	32 x 48
303-534N	5/32" HDPE Natural	48 x 48
303-538N	5/32" HDPE Natural	48 x 96
303-532F	5/32" HDPE Beige	24 x 48
303-533F	5/32" HDPE Beige	32 x 48
303-534F	5/32" HDPE Beige	48 x 48
303-538F	5/32" HDPE Beige	48 x 96
303-362N	3/16" HDPE Natural	24 x 48
303-363N	3/16" HDPE Natural	32 x 48
303-364N	3/16" HDPE Natural	48 x 48
303-368N	3/16" HDPE Natural	48 x 96
303-362K	3/16" HDPE Black	24 x 48
303-363K	3/16" HDPE Black	32 x 48
303-364K	3/16" HDPE Black	48 x 48
303-368K	3/16" HDPE Black	48 x 96
303-142N	1/4" HDPE Natural	24 x 48
303-143N	1/4" HDPE Natural	32 x 48
303-144N	1/4" HDPE Natural	48 x 48
303-148N	1/4" HDPE Natural	48 x 96
303-382N	3/8" HDPE Natural	24 x 48
303-383N	3/8" HDPE Natural	32 x 48
303-384N	3/8" HDPE Natural	48 x 48
303-388N	3/8" HDPE Natural	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Translucent white color (transparent at working temp.) • Vacuum formable • Cold formable • Rigid • Minimal degree of memory 	<ul style="list-style-type: none"> • Must be stress-relieved when heated flat • Edges are easy to polish • Orthoses are easily adjusted • Not easily over-stretched when hot • Crack resistant • Conforms to patient • Moderate shrinkage when cooling
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Static no-motion lower extremity orthoses • Spinal orthoses for rigidity, especially bi-valve body jackets • Vacuum formed or drape formed upper extremity orthoses 	350° - 400°F (177° - 204°C) Below 200°F (Below 93°C)

MATERIAL SAFETY DATA SHEET - HIGH DENSITY POLYETHYLENE

I. General Information

• Chemical Name & Synonyms High Density Polyethylene	• Trade Name & Synonyms High Density Polyethylene, Pipe Grade, Sanalite
• Chemical Family Linear High Density Polyethylene	• Formula (ch ₂ -ch ₂) _n
• Proper DOT Shipping Name N/A	• DOT Hazard Classification N/A

EMERGENCY TELEPHONE NUMBER: 1-800-424-9300 (CHEMTREC)

II. Ingredients

Principal Components	Percent	Threshold Limit Value (Units)
Polyethylene (CAS 9002-88-4)	>90%	10 mg/m ³ (total dust)
Carbon Black (Pipe Grade & Std. Black)	<5%	3.5 mg/m ³ (Respirable dust)

III. Physical Data

• Boiling Point (Deg. F) N/A	• Specific Gravity (H₂O=1) .94-.97
• Vapor Pressure (mm Hg) N/A	• Percent Volatile By Volume (%)
• Vapor Density (Air=1) N/A	• Evaporation Rate (Air=1) N/A
• Solubility in Water Negligible	• pH N/A
• Appearance & Odor Waxy solid, white or black, with waxy odor	

IV. Fire & Explosion Hazard Data

• Flash Point (Test Method) 700° F (370 Deg. C.) ASTM-D-1929 Method B (Setchkin)	• Auto Ignition Temperature 370°C (700 Deg. F)	
• Flammable Limits N/A	• LEL N/A	• UEL N/A
• Extinguishing Media Water, Foam, Carbon Dioxide, Dry Chemical, Synthetic Foams, Alcohol Resistant Foams		
• Special Fire Fighting Procedures Soak thoroughly with water to cool and prevent re-ignition. The smoke can contain polymer fragments of varying composition, in addition to unidentified toxic and/or irritating compounds.		
• Unusual Fire & Explosion Hazards Combustion by-products include, but are not limited to, carbon dioxide, and carbon monoxide.		

HDPE: 1 of 2

V. Health Hazard Data

- | | |
|---|---|
| • OSHA Permissible Exposure Limit
15 mg/m ³ total dust, 5 mg/m ³ respirable dust | • ACGIH Threshold Limit Value
10 mg/m ³ (total dust) |
| • Carcinogen - NTP Program
NO | • Carcinogen - IARC Program
NO |
| • Symptoms of Exposure
None Known | |
| • Medical Conditions Aggravated by Exposure
None known, however, seek medical attention if constant irritation occurs. If thermal decomposition occurs, upper respiratory, eye, nose, and throat irritation may result. | |
| • Primary Route(s) of Entry
Inhalation of particulates | |
| • Emergency First Aid
Molten material. If molten material comes in contact with the skin, cool under running water. Do not attempt to remove the molten material from the skin. Get medical attention. | |

VI. Reactivity Data

- | | |
|---|---|
| • Stability <u> </u> Unstable
<u> X </u> Stable | • Conditions to Avoid
None Known |
| • Incompatibility
Hazardous <u> </u> May Occur
Polymerization <u> X </u> Will Not Occur | • Materials to Avoid
Strong oxidizing agents.
• Conditions to Avoid
None Known |
| • Hazardous Decomposition Products
Carbon Monoxide, Carbon Dioxide, selected Alkanes and Aldehydes including Acrolein and Formaldehyde. | |

VII. Environmental Protection Procedures

- **Spill Response**
Sweep up for disposal or reuse.
- **Waste Disposal Methods**
Incineration or landfill - dispose of in accordance with Federal, State, or Local regulations.

VIII. Special Protection Information

- | | |
|--|--|
| • Eye Protection
Glasses with side shields in dusty conditions. | • Skin Protection
Normally not needed. |
| • Respiratory Protection (Specific Type) - NIOSH approved dust respirator recommended. If material is being burned, wear an organic respirator. | |
| • Ventilation Recommended - Local ventilation in dusty conditions, or if thermal decomposition occurs. | |
| • Other Protection
Gloves and protective garments when handling molten material. | |

IX. Special Precautions

- **Hygienic Practices In Handling & Storage**
Wash with soap and water.
- **Precautions for Repair & Maintenance of Contaminated Equipment**
Eliminate ignition sources.
- **Other Precautions** - Store in a sprinkler protected warehouse. Since High Density is a polyethylene, it will burn with a hot flame if ignited. Avoid contact with ignition sources such as open flames. Keep a fire extinguisher near if welding is done in the area of High Density Polyethylene. If a heat source is present, keep the area well ventilated.

PETG

Also known as Vivak®, Durr-Plex, and Co-polyester

ITEM #	DESCRIPTION	SHEET SIZE
304-181	1/8" PETG Clear	12 x 12
304-186	1/8" PETG Clear	16 x 16
304-182	1/8" PETG Clear	24 x 48
304-183	1/8" PETG Clear	32 x 48
304-184	1/8" PETG Clear	48 x 48
304-188	1/8" PETG Clear	48 x 96
304-361	3/16" PETG Clear	12 x 12
304-366	3/16" PETG Clear	16 x 16
304-362	3/16" PETG Clear	24 x 48
304-363	3/16" PETG Clear	32 x 48
304-364	3/16" PETG Clear	48 x 48
304-368	3/16" PETG Clear	48 x 96
304-141	1/4" PETG Clear	12 x 12
304-146	1/4" PETG Clear	16 x 16
304-142	1/4" PETG Clear	24 x 48
304-143	1/4" PETG Clear	32 x 48
304-144	1/4" PETG Clear	48 x 48
304-148	1/4" PETG Clear	48 x 96
304-381	3/8" PETG Clear	12 x 12
304-386	3/8" PETG Clear	16 x 16
304-382	3/8" PETG Clear	24 x 48
304-383	3/8" PETG Clear	32 x 48
304-384	3/8" PETG Clear	48 x 48
304-388	3/8" PETG Clear	48 x 96
304-121	1/2" PETG Clear	12 x 12
304-126	1/2" PETG Clear	16 x 16
304-122	1/2" PETG Clear	24 x 48
304-123	1/2" PETG Clear	32 x 48
304-124	1/2" PETG Clear	48 x 48
304-128	1/2" PETG Clear	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Transparent color • Vacuum formable • Not cold formable • Self-adhesive when hot • Extremely rigid 	<ul style="list-style-type: none"> • Brittle • Stiff even at working temperatures • Difficult to judge heating time • Bubbles when exposed to excessive temperatures • FDA approved • Vacuum forms with very fine detail • Usually identified by masking material on each side to prevent scratching
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Prosthetic Check Sockets • Orthoses for burn management 	250° - 330°F (121 ° - 165°C)

MATERIAL SAFETY DATA SHEET - PETG (VIVAK®)

Material Vivak® Copolyester Sheet	Code All	Key SPINC-021	DOT Hazard Class
	Date Issued August 7, 1997		Nonhazardous

Product Use

Vivak® Copolyester sheet is well suited for a variety of point of purchase and sign applications

Formula N/A	Chemical Name or Synonyms Copolyester (CAS#025640-14-6)	Emergency Telephone 800-424-9300 (CHEMTREC)
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I. Compositional Information

This product consists primarily of high molecular weight polymers. Substances listed below are reportable hazardous ingredients as defined by the OSHA Hazard Communication Standard. Exposure limits, when available, are also listed.

CAS.Reg No	Approx Wt%	TWA/TLV		
		SPINC	OSHA	ACGIH
This product does not contain reportable hazardous ingredients as defined by OSHA Hazard Communication Standard (29 CFR 1910.1200)	100	NE	NE	NE

II. Hazards Identification Information

Emergency Overview

Sheet with slight or no odor. Can burn in fire creating dense toxic smoke. Molten plastic can cause severe thermal burns. Fumes produced during melt processing may cause eye, skin, and respiratory tract irritation. Secondary operations, such as grinding, sanding or sawing, can produce dust, which may present an explosion or respiratory hazard.

Potential Health Effects

Eye:	Product may cause irritation or injury due to mechanical action
Skin:	Sheet not likely to cause skin irritation
Ingestion:	Not acutely toxic
Inhalation:	Unlikely due to physical form

Hazard Rating:

4 = Extreme	Health	I
3 = High		
2 = Moderate	Flammability	I
1 = Slight		
0 = Insignificant	Reactivity	0
**See Section IV	Other	

Chronic/Carcinogenicity

NTP:	Not Tested
OSHA:	Not Regulated
IARC:	Not Listed

Melt Processing Health Effects: Molten plastic can cause severe burns. Processing fumes may cause irritation to eyes, skin, and respiratory tract, in cases of severe over-exposure, nausea and headache. Grease-like processing fume condensates in ventilation duct work, molds and others surfaces can cause irritation and injury to skin.

Medical Restrictions: There are no known human health effects aggravated by exposure to this product. However, certain sensitive individuals and individuals with respiratory impairments may be affected by exposure to components in the processing fumes.

Note: OSHA, IARC and/or NTP have listed carbon black and heavy metals, present in some colorants, as carcinogens. These colorants are essentially bounded to the plastic matrix and are unlikely to contribute to workplace exposure under recommended process conditions.

III. Physical Property Information

Appearance - Odor - pH

Solid may have slight odor. pH - Not applicable

Viscosity

Not Applicable

Melting or Freezing Point >100C (212° F)	Boiling Point Not applicable	Vapor Pressure (mm Hg) Negligible	Vapor Density (Air=1) Not applicable
Solubility in Water Insoluble	Percent Volatile by Weight Negligible	Specific Gravity (Water=1) >1	Evaporation Rate Negligible

PETG: 1 of 4

IV. Fire & Explosion Hazard Information

Flash Point Not Applicable	Auto Ignition Temperature 454° C (849° F) estimate	Lower Exposure Limit (%) Not Established	Upper Exposure Limit (%) Not Established
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Extinguisher Media

γ Foam γ "Alcohol" Foam γ CO₂ ξ Dry Chemical ξ Water Spray γ Other

Special Fire Fighting Procedures

Approved pressure demand breathing apparatus and protective clothing should be used for all fires.

Unusual Fire & Explosion Hazards

Explosion Data:

Impact Sensitivity: Not sensitive to mechanical impact.

Static Discharge: Not sensitive to static discharge

Hazardous Combustion Products: Hazardous combustion products may include intense heat, dense black smoke, carbon monoxide, carbon dioxide

V. First Aid Information

Emergency and First Aid Procedures:

Eyes: Remove contact lenses at once. Immediately flush eyes well with copious quantities of water or normal saline for at least 20-30 minutes. If irritation persists, seek medical attention.

Skin: Wash skin thoroughly with soap and water. Seek medical attention if rash or burn occurs.

Ingestion: Not probable. If large amount is swallowed, seek medical attention.

Inhalation: Not likely due to physical form.

Melting Process: For molten plastic skin contact, cool rapidly with water and immediately seek medical attention. Do not attempt removal of plastic without medical assistance. Do not use solvent for removal. For process fume inhalation irritation, leave contaminated area and breathe fresh air. If coughing, difficult breathing or any other symptoms develop, seek medical attention at once, even if symptoms develop at a later time. For skin contact with fume condensate, immediately wash thoroughly with soap and water. If irritation develops seek medical attention.

VI. Reactivity Information

Stability ξ Stable γ Unstable	Conditions to Avoid Material can react with strong oxidizing agents.
---	--

Hazardous Decomposition Products

Carbon dioxide, Carbon monoxide

Hazardous Polymerization γ May Occur ξ Will not Occur	Conditions to Avoid Not reactive under recommended conditions.
---	--

Incompatibility (Materials to Avoid)

Not Applicable

VII. Spill or Leak Procedure Information

Steps to be Taken in Case Material is Released or Spilled

Sweep or gather up and place in proper container for disposal or recovery.

Waste Disposal Methods

RCRA Hazardous Waste: Product is not a RCRA hazardous waste.

Waste Disposal: Recycling is encouraged. Landfill or incinerate in accordance with federal, state or local requirements.

VIII. Special Protection Information

Engineering Controls:	A continuous supply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended. Processing fume condensate may be a fire hazard and toxic; remove periodically from exhaust hoods, duct work, and other surfaces using appropriate personal protection. Ventilation requirements must be locally determined to limit exposure to processing fumes in the workplace. Design techniques and guidelines may be found in publications such as: Industrial Ventilation; available from the American Conference of Governmental Industrial Hygienists, Committee on Industrial Ventilation, P.O. Box 16153, Lansing, MI 48901
Personal Protection:	
Eye/Face:	Wear safety glasses with side shields or chemical goggles. In addition, use full face shield when cleaning processing fume condensates from hoods, ducts, and other surfaces.
Skin:	When handling sheets, avoid prolonged or repeated contact with skin. When melt processing product wear long pants, long sleeves, well insulated gloves, and face shield when applicable. Use appropriate protective clothing, including chemical resistant gloves, to prevent any contact with processing fume condensates.
Respiratory:	When processing fumes are not adequately controlled, use respirator approved for protection from organic vapors and acid gases. When dust or powder from secondary operations, such as grinding, sanding, or sawing, are not adequately controlled use respirator approved for protection from dust.

IX. Storage & Handling Information

Storage Temperature Max 82C/180 F Min.	Indoor	Heated	Refrigerated	Outdoor
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Store at Ambient Temperatures

Handling:	Prevent contact with skin and eyes. Use good industrial hygiene practices. Provide adequate ventilation. Secondary operations such as grinding, sanding, or sawing may produce a dust explosion hazard. Use aggressive housekeeping activities to prevent dust accumulation; employ bonding, grounding, venting, and explosion relief provisions in accordance with accepted engineering practices.
Storage:	Store in a dry place away from moisture, excessive heat, and sources of ignition.

X. Toxicity Information

Product:	
Eye:	Product not considered primary eye irritant. When similar products, in finely divided form, were placed into the eyes of rabbits, slight transient redness or discharge occurred – consistent with the expected slightly abrasive nature of product.
Skin:	Product not considered primary skin irritant Dermal LD-50 (guinea pig) >1000 mg/kg Skin irritation (guinea pig): slight; repeated skin application (guinea pig) no irritation; Skin sensitivity: none
Acute Oral:	Oral LD-50 (rat) >3200 mg/kg, Oral LD-50 (mouse) >3200 mg/kg, estimated.
Acute Inhalation:	Processing fumes from similar products are not considered toxic. Inhalation LC-50: not available
Subchronic:	In subchronic testing, oral study (11 days, male rat): NOEL = 730 mg/kg/day (highest dose tested)

XI. Ecological Information

General:	Not expected to present any significant ecological problems.
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XII. Transportation Information

DOT Hazard Class:	Not Regulated
Proper Shipping Name:	Not Regulated
Identification Number:	Not Listed
TDGA:	Not Listed

XIII. Regulatory Information

Listed below are chemical substances subject to supplier notification requirement. The percentages, when present, represent average values.

CAS Number	EPCRA	WHMIS	NPRI	CA-65	FL	RI
Chemical Name	313,%	%	%	%		

This product does not contain reportable quantities of substances subject to supplier notification.

TSCA Status:

This product complies with the Chemical Substance Inventory requirements of US EPA Toxic Substances Control Act (TSCA)

WHMIS Classification: Not a controlled product.

XIV. Miscellaneous Information

Footnote to Section I: NE = None Established

Abbreviations:

ACGIH:	American Conference of Governmental Industrial Hygienists
CA-65:	California Proposition 65 (Safe Drinking Water & Toxic Enforcement Act)
CAS #:	Chemical Abstracts Service Number
EPCRA 313:	Emergency Planning and Community Right-To-Know Act, Section 313
FL:	Florida Right-To-Know, Substance List
OSHA:	The Occupational Safety and Health Administration
NPRI:	The Canadian National Pollutant Release Inventory
RCRA:	Resource Conservation and Recovery Act
RI:	Rhode Island Right-To-Know Law, Hazardous Substance List
WHMIS:	Canadian Workplace Hazardous Materials Information Systems

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	Key	Date of Issue	Supersedes
N/A = Not Applicable C = Ceiling Value	SPINC-021	August 7, 1997	

The information contained herein is based on data considered accurate. However, no warranty is expressed or implied, except that it is accurate to the best knowledge of DSM Engineering Plastic Products, Inc. Sheffield Plastics.

DSM Sheffield assumes no responsibility for personal injury or property damage to vendees, users, or third parties for loss damage or expense arising out of or in any way connected with the handling, storage, use of the product.

SURLYN®

ITEM #	DESCRIPTION	SHEET SIZE
305-181	1/8" Surlyn	12 x 12
305-186	1/8" Surlyn	16 x 16
305-182	1/8" Surlyn	24 x 48
305-183	1/8" Surlyn	32 x 48
305-184	1/8" Surlyn	48 x 48
305-188	1/8" Surlyn	48 x 96
305-361	3/16" Surlyn	12 x 12
305-366	3/16" Surlyn	16 x 16
305-362	3/16" Surlyn	24 x 48
305-363	3/16" Surlyn	32 x 48
305-364	3/16" Surlyn	48 x 48
305-368	3/16" Surlyn	48 x 96
305-141	1/4" Surlyn	12 x 12
305-146	1/4" Surlyn	16 x 16
305-142	1/4" Surlyn	24 x 48
305-143	1/4" Surlyn	32 x 48
305-144	1/4" Surlyn	48 x 48
305-148	1/4" Surlyn	48 x 96
305-381	3/8" Surlyn	12 x 12
305-386	3/8" Surlyn	16 x 16
305-382	3/8" Surlyn	24 x 48
305-383	3/8" Surlyn	32 x 48
305-384	3/8" Surlyn	48 x 48
305-388	3/8" Surlyn	48 x 96
305-121	1/2" Surlyn	12 x 12
305-126	1/2" Surlyn	16 x 16
305-122	1/2" Surlyn	24 x 48
305-123	1/2" Surlyn	32 x 48
305-124	1/2" Surlyn	48 x 48
305-128	1/2" Surlyn	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Translucent color • Vacuum formable • Not cold formable • Self-adhesive when hot • Minimal rigidity 	<ul style="list-style-type: none"> • Extreme care must be taken when grinding, buffing, cutting, or polishing • Toxic fumes are released when overheated • Bubbles form when material is overheated or heated too quickly • Easy to scratch
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Prosthetic flexible sockets • Post-operative body jackets • Orthoses for burn management 	250° - 325°F (121° - 163°C)

Surlyn® is a registered trademark of DuPont Co.

MATERIAL SAFETY DATA SHEET - SURLYN

I. Chemical Product/Company Identification

Material Identification

“Surlyn®” is a registered trademark of DuPont

Tradenames and Synonyms

“Surlyn” AD8270, 9020, 9020P, 9320, 9320W

Company Identification

Manufacturer/ Distributor

DuPont Packaging & Industrial Polymers
1007 Market Street
Wilmington, DE 19898

Emergency Phone Numbers:	Product Information 1-800-441-7515	Transport Emergency 1-800-424-9300	Medical Emergency 1-800-441-3637
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II. Composition/Information on Ingredients

Components

Material	CAS Number	%
Ethylene Copolymers, Partial Zinc Salt		>99
*Zinc Compounds (Some Copolymers)	7440-66-6	<5

*Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

III. Hazards Identification

Potential Health Effects

Before using “Surlyn” Ionomer Resins, read the bulletin on the safe handling of these polymers.

No information available for this “Surlyn” ionomer resin or for the ethylene/methacrylic acid copolymer partial metal salt. Based on its similarity to other polymers, this “Surlyn” resin is predicted to have low toxicity.

Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA, or ACGIH as a carcinogen.

IV. First Aid Measures

First Aid

- Inhalation:** No specific intervention is indicated as the compound is not likely to be hazardous by inhalation. Consult a physician if necessary.
- Skin Contact:** The compound is not likely to be hazardous by skin contact but cleansing the skin after use is advisable.
- Eye Contact:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
- Ingestion:** No specific intervention is indicated as compound is not likely to be hazardous by ingestion. Consult a physician if necessary.

V. Fire Fighting Measures

Flammable Properties

Fire and Explosion Hazards:

The solid polymer can be combusted only with difficulty.

Hazardous gases/vapors produced in fire and carbon monoxide and hydrocarbon oxidation products including organic acids, aldehydes and alcohols, and sodium oxides.

Extinguishing Media

Water, Foam, Dry Chemical, CO₂

Fire Fighting Instructions

Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus.

Use self-contained breathing apparatus if exposed to fumes.

VI. Accidental Release Measures

Safeguards (Personnel)

NOTE: Review **Fire Fighting Measures** and **Handling (Personnel)** sections before proceeding with clean-up. Use appropriate **Personal Protective Equipment** during clean-up.

Spill Clean Up

Recover undamaged and minimally contaminated material for reuse and reclamation.

Accidental Release Measures

Sweep up to avoid slipping hazard.

VII. Handling and Storage

Handling (Personnel)

See **First Aid** and **Protection Information** Sections

Storage

Store in a cool dry place. Keep containers closed to prevent contamination.

VIII. Exposure Controls/Personal Protection

Personal Protective Equipment

Eye/Face Protection

Wear safety glasses. Wear coverall chemical splash goggles and face shield when possibility exists for eye and face contact due to splashing or spraying of molten material. A full face mask respirator provides protection from eye irritation.

Respirators

A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge with a dust/mist canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Protective Clothing

If there is potential contact with hot/molten material, wear heat resistant clothing and footwear.

IX. Exposure Controls/Personal Protection (Continued)

Engineering Controls

Ventilation Local exhaust ventilation should be used over processing equipment.

Exposure Guidelines

Exposure Limits

“Surlyn” Ionomer Resin all in synonym list SUR011

PEL (OSHA) Particulates (Not Otherwise Regulated)
15 mg/m³, 8 Hr. TWA, total dust
5 mg/m³, 8 Hr. TWA, respirable dust

X. Physical and Chemical Properties

Physical Data	Melting Point	N/A
	% Volatiles	Negligible
	Solubility in Water	Negligible
	Odor	Mild methacrylic acid
	Form	Pellets
	Color	White
	Specific Gravity	N/A

XI. Stability and Reactivity

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible with oxidizing agents.

Decomposition

Decomposes with heat.

Decomposition temperature 325° C (617° F)

Hazardous gases/vapors produced are carbon monoxide and hydrocarbon oxidation products including organic acids, aldehydes, and alcohols.

Polymerization

Polymerization will not occur.

XII. Ecological Information

Ecotoxicological Information

Aquatic Toxicity

No information. Toxicity is expected to be low based on negligible water solubility.

XIII. Disposal Considerations

Waste Disposal

Preferred options for disposal are (1) recycling, (2) incineration with energy recovery, and (3) landfill. The high fuel value of this product makes option 2 very desirable for material that cannot be recycled.

Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations.

XIV. Transportation Information

Shipping Information

DOT

Proper Shipping Name Not Regulated

XV. Regulatory Information

U.S. Federal Regulations

TSCA Inventory Status In compliance with TSCA Inventory requirements for commercial purposes.

State Regulations (U.S.)

State Right-To-Know Laws

No substance on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Material Safety Data Sheet.

Substances on the Pennsylvania Hazardous Substances List present at a concentration of 1% or more (0.01% for special hazardous substances): None known

Warning: Substances known to the state of California to cause cancer, birth defects, or other reproductive harm: None known

Substances on the New Jersey Workplace Hazardous Substance List present at a concentration of 1% or more (0.1% for substances identified as carcinogens, mutagens, or teratogens): None known

XVI. Other Information

Additional Information

Medical use: Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications see DuPont Caution Bulletin No. H-50102.

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

Responsibility for MSDS	T.E. Schroer
Address	DuPont Packaging & Industrial Polymers Chestnut Run Plaza 713 Wilmington, DE 19880-0713
Telephone	302-999-4664

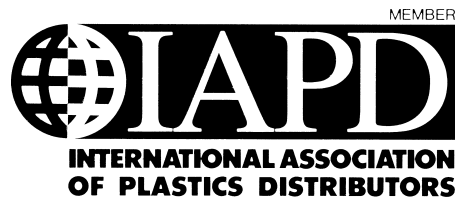
indicates updated section

Revised 5-Mar-1998

Printed 19-Nov-1998

PROFLEX®

ITEM #	DESCRIPTION	SHEET SIZE
306-141	1/4" ProFlex	12 x 12
306-146	1/4" ProFlex	16 x 16
306-142	1/4" ProFlex	24 x 48
306-143	1/4" ProFlex	32 x 48
306-144	1/4" ProFlex	48 x 48
306-148	1/4" ProFlex	48 x 96
306-381	3/8" ProFlex	12 x 12
306-386	3/8" ProFlex	16 x 16
306-382	3/8" ProFlex	24 x 48
306-383	3/8" ProFlex	32 x 48
306-384	3/8" ProFlex	48 x 48
306-388	3/8" ProFlex	48 x 96
306-121	1/2" ProFlex	12 x 12
306-126	1/2" ProFlex	16 x 16
306-122	1/2" ProFlex	24 x 48
306-123	1/2" ProFlex	32 x 48
306-124	1/2" ProFlex	48 x 48
306-128	1/2" ProFlex	48 x 96



FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Transparent color • Vacuum formable • Flexible material • Self-adhesive when hot 	<ul style="list-style-type: none"> • Clear flexible socket material • Vacuum forms easily • Blister formable
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Prosthetic Flexible Sockets 	350°F (177°C)

PROFLEX® WITH SILICONE

ITEM #	DESCRIPTION	SHEET SIZE
307-141	1/4" ProFlex with Silicone	12 x 12
307-146	1/4" ProFlex with Silicone	16 x 16
307-142	1/4" ProFlex with Silicone	24 x 48
307-143	1/4" ProFlex with Silicone	32 x 48
307-144	1/4" ProFlex with Silicone	48 x 48
307-148	1/4" ProFlex with Silicone	48 x 96
307-381	3/8" ProFlex with Silicone	12 x 12
307-386	3/8" ProFlex with Silicone	16 x 16
307-382	3/8" ProFlex with Silicone	24 x 48
307-383	3/8" ProFlex with Silicone	32 x 48
307-384	3/8" ProFlex with Silicone	48 x 48
307-388	3/8" ProFlex with Silicone	48 x 96
307-121	1/2" ProFlex with Silicone	12 x 12
307-126	1/2" ProFlex with Silicone	16 x 16
307-122	1/2" ProFlex with Silicone	24 x 48
307-123	1/2" ProFlex with Silicone	32 x 48
307-124	1/2" ProFlex with Silicone	48 x 48
307-128	1/2" ProFlex with Silicone	48 x 96



FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Opaque in color • Vacuum formable • Flexible material • Self-adhesive and less sticky than Proflax when hot 	<ul style="list-style-type: none"> • Flexible socket material • Vacuum forms easily • Blister formable
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Prosthetic Flexible Sockets 	350°F (177°C)

MATERIAL SAFETY DATA SHEET - PROFLEX / PROFLEX WITH SILICONE

I. General Information

Identity (As used on Label and List): ProFlex and ProFlex with Silicone

EMERGENCY TELEPHONE NUMBER: 1-978-462-4100

II. Hazardous Ingredients/Identity Information

Hazardous Components (Specific Identity: Common Names(s))	OSHA PEL	ACGIH TLLV	Other Limits	% (optional)
			Recommended	
Vinyl Acetate (CAS # 108-05-4)		10 ppm	10 ppm	<0.3%
			AEL (DuPont)	

III. Physical/Chemical Characteristics

Boiling Point (Method Used)	N/A	Specific Gravity (H ₂ O=1)	0.93-0.97
Vapor Pressure (mm Hg)	N/A	Melting Point	N/A
Vapor Density (Air=1)	N/A	Evaporation Rate (Butyl Acetate=1)	N/A
Solubility in Water	Negligible		
Appearance & Odor	ProFlex: Translucent to Light Blue, mild ester-like odor ProFlex-S: Off white, opaque, mild ester-like odor		

IV. Fire & Explosion Hazard Data

Flash Point (Method Used)	260 ° C (Cleveland)	Flammable Limits	LEL	ND	UEL	ND
Extinguishing Media	Water, Foam, Dry Chemical, CO ₂					
Special Fire Fighting Procedures	Wear a self-contained breathing apparatus					
Unusual Fire & Explosion Hazards	None known					

V. Reactivity Data

Stability	Unstable	Conditions to Avoid	Temperatures above 200° C
	Stable X		
Incompatibility (Materials to Avoid)	Can react with strong acids or oxidizing agents.		
Hazardous Decomposition or Byproducts	Vinyl acetate, acetic acid, carbon monoxide, and hydrocarbon oxidation products including organic acids, aldehydes, and alcohols.		
Hazardous Polymerization	May Occur	Conditions to Avoid	
	Will Not Occur X		

VI. Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Not a probable route of entry 4 hr LC50: 4000 ppm in rats	No data available LD50: 2335 mg/kg in rabbits	Not a probable route of entry LD50: 2920 mg in rats

Health Hazards (Acute or Chronic)

Vinyl Acetate is not a developmental toxin in animals. The effect of Vinyl Acetate on reproduction in animals is not considered significant. Genetic damage was produced in some types of cell cultures and in animals, but was negative in other studies. No tests for heritable genetic damage were available.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
		Vinyl Acetate	2B

Signs and Symptoms of Exposure

None known

Medical Conditions Generally Aggravated by Exposure

None known

Emergency and First Aid Procedures

If dust is inhaled, remove to fresh air

VII. Precautions for Safe Handling and Use

Steps to be Taken in Case Material is Released or Spilled: NA

Waste Disposal Method

1) Recycle, 2) Incineration with energy recovery, 3) Landfill (in accordance with local regulations)

Precautions to be Taken in Handling and Storing

Store in a cool dry place

VIII. Control Measures

Respiratory Protection (Specify Type)

A NIOSH/MSHA respirator with organic vapor cartridge where airborne concentrations exceed limits.

Ventilation	Local Exhaust	Use ventilation over processing equipment	Special	NA
	Mechanical (General)	NA	Other	NA
Protective Gloves			Eye Protection	
Heat resistant gloves if exposed to molten polymer			Safety glasses are recommended	

Other Protective Clothing

Heat resistant clothing if exposed to molten polymer.

Work/Hygienic Practices Handle in accordance with good industrial hygiene and safety practices

NA: Not Applicable ND: Not Determined

Material Safety Data Sheet	U.S. Department of Labor
May be used to comply with	Occupational Safety and Health Administration
OSHA's Hazard Communication Standard	(Non-Mandatory Form)
29 CFR 1910.1200 Standard must be	Form Approved
Consulted for specific requirements	OMB No. 1218-0072

Date Prepared: 10/25/99

KYDEX-T®

ITEM #	DESCRIPTION	SHEET SIZE
308-182B	1/8" Kydex-T Brown	24 x 48
308-183B	1/8" Kydex-T Brown	32 x 48
308-184B	1/8" Kydex-T Brown	48 x 48
308-188B	1/8" Kydex-T Brown	48 x 96
308-182BG	1/8" Kydex-T Beige	24 x 48
308-183BG	1/8" Kydex-T Beige	32 x 48
308-184BG	1/8" Kydex-T Beige	48 x 48
308-188BG	1/8" Kydex-T Beige	48 x 96
308-182G	1/8" Kydex-T Grey	24 x 48
308-183G	1/8" Kydex-T Grey	32 x 48
308-184G	1/8" Kydex-T Grey	48 x 48
308-188G	1/8" Kydex-T Grey	48 x 96
308-182W	1/8" Kydex-T White	24 x 48
308-183W	1/8" Kydex-T White	32 x 48
308-184W	1/8" Kydex-T White	48 x 48
308-188W	1/8" Kydex-T White	48 x 96
308-142BG	1/4" Kydex-T Beige	24 x 48
308-143BG	1/4" Kydex-T Beige	32 x 48
308-144BG	1/4" Kydex-T Beige	48 x 48
308-148BG	1/4" Kydex-T Beige	48 x 96



FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Vacuum formable • Extremely rigid • Extremely impact and crack resistant • Texture finish • Acrylic/PVC Alloy 	<ul style="list-style-type: none"> • Difficult to judge heating time due to pigments • Not easily stretched • Does not readily bond to foam liners • Can be cold formed to an extent • Slightly heavier than polyolefins • Produces moderate odor when heating
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Bivalve Spinal Orthoses • ChairbackType Spinal Orthoses 	325° - 400°F (163° - 205°C)

MATERIAL SAFETY DATA SHEET - KYDEX® (All Grades)

I. Chemical Product and Company Identification

Product/Chemical Name: Kydex thermoplastic sheet; acrylic/PVC alloy
Other Designations: Mixture of polyvinyl chloride, chlorinated polyvinyl chloride, acrylic polymer, processing aids, impact modifiers, heat stabilizers, lubricants, and pigments
General Use: Thermoforming

Emergency Telephone Number: 800-325-3133 or 803-642-6864

II. Composition/Information on Ingredients

Ingredient Name:	CAS Number	% wt
Polyvinyl Chloride; ethene, chloro-homopolymer	9002-86-2	0-99
Chlorinated polyvinyl chloride	68648-82-8	0-99
Mixture of processing aids, impact modifiers, heat stabilizers, lubricants, and pigments	Trade Secret	2-50
Organotin	Trade Secret	0.1-3

Trace Impurities:

Ingredient	OSHA PEL		ACGIH TLV	
	TWA	STEL	TWA	STEL
Polyvinyl chloride	none estab.	none estab.	Particles Not Otherwise Classified 10 mg/m ³	none estab.
Chlorinated polyvinyl chloride	none estab.	none estab.	Particles Not Otherwise Classified: 10 mg/m ³	none estab.
Organotin	0.1 mg/m ³	none estab.	0.1 mg/m ³	0.2 mg/m ³
Titanium dioxide	5 mg/m ³	none estab.	10 mg/m ³	none estab.

III. Hazards Identification

◆◆◆◆ Emergency Overview ◆◆◆◆

Kydex® thermoplastic sheet, a rigid plastic sheet, is in general a non-hazardous polymeric material and does not present any serious hazards during its normal handling and use. As with any material, however, there are guidelines that should be followed in an emergency situation. If dust or vapors are inhaled, get to well ventilated area. If skin and eyes are irritated, flush with water for 15 minutes.

HMIS	
H	1
F	1
R	0
PPE†	
†Sec. 8	

Potential Health Effects

Primary Entry Routes: Inhalation, skin/eyes, ingestion (vapors if burned or dust from machining the sheet)

Target Organs: Respiratory system, eyes

Acute Effects

Inhalation: Prolonged inhalation of dust from cutting or machining the plastic sheet may cause nose, throat, and upper respiratory tract irritation. Excessive heating may lead to decomposition with the release of hydrogen chloride which could cause irritation to upper respiratory tract.

Eye: Excessive heating may lead to decomposition with the release of hydrogen chloride which could cause irritation of eyes.

Skin: Dust from cutting and machining the sheet may be irritating to skin.

Ingestion: Not a likely route of exposure

Carcinogenicity: IARC, NTP, and OSHA do not list Kydex as a carcinogen.

Medical Conditions Aggravated by Long-Term Exposure: Not known

Chronic Effects: Not known

IV. First Aid Measures

Inhalation: If irritation occurs from dust or vapors from excessive heating, move to a well-ventilated area; if irritation persists, consult a physician.

Eye Contact: If irritation occurs from dust or vapors from excessive heating, flush eyes with large amounts of water for at least 15 minutes; if irritation persists, consult a physician.

Skin Contact: If irritation occurs from dust or vapors from excessive heating, flush skin with large amounts of water for at least 15 minutes; if irritation persists, consult a physician.

Ingestion: Not a likely route of exposure

Note to Physicians: None

Special Precautions: None

V. Fire Fighting Measures

Flash Point: 735° F (390° C)

Auto Ignition Temperature: 849° F (454° C)

LEL: Not available

UEL: Not available

Flammability Classification: Not flammable

Extinguishing Media: Water, carbon dioxide, dry chemical, or foam

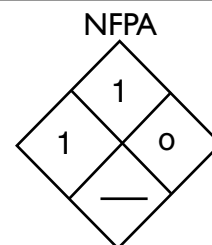
Unusual Fire or Explosion Hazards: Polyvinyl chloride-based material will NOT continue to burn after ignition without an external heat source. When burning, or at room temperatures above 425° F, slow evolution of hydrogen chloride could occur.

Hazardous Combustion Products: Hydrogen chloride, carbon monoxide, carbon dioxide

NOTE: Hydrogen chloride is detectable by its sharp pungent odor in concentrations as low as 1 ppm. Low concentrations (below 50 ppm) are not harmful in short-term exposures but do provide excellent warning properties by causing coughing or irritation. Because the protective response is so strong, humans rarely submit to damaging concentrations – instead there is an unmistakable urge to leave the area. Repeated or prolonged exposure to high concentrations can cause eye and respiratory damage.

Fire-Fighting Instructions: Keep unauthorized personnel removed.

Fire-Fighting Equipment: Because fire may produce toxic thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.



VI. Accidental Release Measures

Spill/Leak Procedures: Not applicable. Kydex sheet will not spill or leak; it is solid; however, dust from machining the product may leak or spill.

Small Spills: If dust or powder from cutting and machining the plastic sheet is spilled, vacuum or sweep up and place in containers for recovery or disposal.

Large Spills: If dust or powder from cutting and machining the plastic sheet is spilled, vacuum or sweep up and place in containers for recovery or disposal.

Containment: Not applicable

Cleanup: Vacuum or sweep up and place in containers for recovery or disposal.

Regulatory Requirements: Follow applicable OSHA regulations (29 CFR 1910.120).

VII. Handling and Storage

Handling Precautions: Dust levels should be kept below respiratory dust concentrations of 5 mg/m³. Take proper care when moving, loading, or unloading. Electrostatic charge may build up during handling; grounding of equipment is recommended.

Storage Requirements: Store in a dry area below 100° F (37.7° C).

Regulatory Requirements: Kydex is not regulated.

Kyd: 2 of 4

VIII. Exposure Controls/ Personal Protection

Engineering Controls: Maintain levels of airborne contaminants below exposure levels by controlling general and local room ventilation in areas where machining, cutting, or thermoforming Kydex occurs. Ground equipment to prevent build up of electrostatic charge.

Ventilation: Provide general or local exhaust ventilation systems to maintain airborne concentrations below OSHA PELs (Sec. 2). Local exhaust ventilation is preferred because it prevents contaminant dispersion into the work area by controlling it at its source.

Administrative Controls: None

Respiratory Protection: Seek professional advice prior to respirator selection and use. Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a MSHA/NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of contamination, and presence of sufficient oxygen. *Warning! Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.* If respirators are used, OSHA requires a written respiratory protection program that includes at least: medical certification, training, fit-testing, periodic environmental monitoring, maintenance, inspection, cleaning, and convenient, sanitary storage areas.

Protective Clothing/Equipment: Wear protective eyeglasses or chemical safety goggles, per OSHA eye- and face-protection regulations (29 CFR 1910.133). Contact lenses are not eye protective devices. Appropriate eye protection must be worn instead of, or in conjunction with contact lenses.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Contaminated Equipment: Not applicable.

IX. Physical and Chemical Properties

Physical State: Solid

Appearance & Odor: Opaque plastic sheet; slight odor

Odor Threshold: Not available

Vapor Pressure: Not available

Vapor Density (Air=1): Not available

Formula Weight: Not available (mix)

Density: 1.3-1.5 g/cc

Specific Gravity (H₂O)=1, at 4° C): 1.3-1.5

pH: Not available

Water Solubility: Negligible

Other Solubilities: Tetrahydrofuran (THF)

Boiling Point: Not available

Freezing/Melting Point: Not available

Viscosity: Not available (solid)

Refractive Index: Not available (opaque)

Surface Tension: Not available

% Volatile: Not available

Evaporation Rate: Not available

X. Stability and Reactivity

Stability: Kydex thermoplastic sheet is stable at room temperature under normal storage and handling conditions.

Polymerization: Hazardous polymerization WILL NOT occur.

Chemical Incompatibilities: Polyvinyl chloride-based materials should not come in contact with acetal or acetal polymers in elevated temperature processing equipment. The two materials are not compatible and will react in violent decomposition when mixed under conditions of heat and pressure.

Conditions to Avoid: Temperatures of 425° F (218.3° C) and above

Hazardous Decomposition Products: Carbon monoxide, carbon dioxide, hydrogen chloride

XI. Toxicological Information

Eye Effects: Possible irritation due to dust particles

Toxicity Data:*

Acute Inhalation Effects: Polyvinyl Chloride [PVC]: Rats and guinea pigs exposed continuously to PVC dust for 24hrs/day for periods varying from 2-7 months were found to have extensive lung damage. In rats, inhalation of fumes from heated PVC produced interstitial edema as well as focal, bronchial, and intraveolar hemorrhage.

Acute Oral Effects: Not known

Chronic Effects: Not known

Carcinogenicity: Kydex is not a carcinogen.

Mutagenicity: Not known

Teratogenicity: Not known

* See NIOSH and RTECS for additional toxicity data.

XII. Ecological Information

No ecological data available.

XIII. Disposal Considerations

Disposal: Wastes can be landfilled. Dispose of in accordance with federal, state, and local regulations.

XIV. Transport Information

DOT Transportation Data (49 CFR 172.101):

Shipping Name: Kydex	Packaging Authorizations	Quantity Limitations
Shipping Symbols: None	None	None
Hazard Class: Not regulated		Vessel Stowage Requirements
ID No.: Not applicable		None
Packing Group: Not applicable		
Label: Not applicable		
Special Provisions (172.102): None		

XV. Regulatory Information

EPA Regulations:

RCRA Hazardous Waste Number: Not listed (40 CFR 261.33)
CERCLA Hazardous Substance (40 CFR 302.4) unlisted specific per RCRA, Sec. 3001; CWA, Sec. 311 (b)(4);
CWA, Sec. 307(a), CAA, Sec. 112

CERCLA Reportable Quantity: None

SARA /Title III Hazard Categories:

Immediate (Acute) Health: No

Reactive Hazard: No

Delayed (Chronic) Health: No

Sudden Release of Pressure: No

Fire Hazard: No

OSHA Regulations:

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A): Not listed

OSHA Standard (29 CFR 1910.1200) requires that information be provided to employees regarding the hazards of chemicals by means of a hazard communication program including labeling, material safety data sheets, training, and access to written records. We request that you, and it is your legal duty to make all information in the Material Safety Data Sheet available to your employees.

State Regulations: New Jersey Workplace Hazardous Substance List: Chlorinated polyvinyl chloride, organotin compound, modifier and lubricant, titanium dioxide

Pennsylvania Right-To-Know Act: Chlorinated polyvinyl chloride, organotin compound, modifier, lubricant

XVI. Other Information

Prepared By: Carole Reed

Revision Notes: None

Additional Hazard Rating Systems: None

Disclaimer: These suggestions and data are based on information that we believe to be reliable and accurate at the time of publication. They are offered in good faith, but without guarantee, as the conditions and methods of use of our products are beyond our control.

Date of Preparation: 10/97

Revision: 11/97

MODIFIED POLYETHYLENE (MPE)

ITEM #	DESCRIPTION	SHEET SIZE
309-182	1/8" Modified P.E.	24 x 48
309-183	1/8" Modified P.E.	32 x 48
309-184	1/8" Modified P.E.	48 x 48
309-188	1/8" Modified P.E.	48 x 96
309-532	5/32" Modified P.E.	24 x 48
309-533	5/32" Modified P.E.	32 x 48
309-534	5/32" Modified P.E.	48 x 48
309-538	5/32" Modified P.E.	48 x 96
309-362	3/16" Modified P.E.	24 x 48
309-363	3/16" Modified P.E.	32 x 48
309-364	3/16" Modified P.E.	48 x 48
309-368	3/16" Modified P.E.	48 x 96
309-141	1/4" Modified P.E.	12 x 12
309-146	1/4" Modified P.E.	16 x 16
309-142	1/4" Modified P.E.	24 x 48
309-143	1/4" Modified P.E.	32 x 48
309-144	1/4" Modified P.E.	48 x 48
309-148	1/4" Modified P.E.	48 x 96
309-381	3/8" Modified P.E.	12 x 12
309-386	3/8" Modified P.E.	16 x 16
309-382	3/8" Modified P.E.	24 x 48
309-383	3/8" Modified P.E.	32 x 48
309-384	3/8" Modified P.E.	48 x 48
309-388	3/8" Modified P.E.	48 x 96
309-121	1/2" Modified P.E.	12 x 12
309-126	1/2" Modified P.E.	16 x 16
309-122	1/2" Modified P.E.	24 x 48
309-123	1/2" Modified P.E.	32 x 48
309-124	1/2" Modified P.E.	48 x 48
309-128	1/2" Modified P.E.	48 x 96

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Translucent white color (transparent at working temp.) • Vacuum formable • Not cold formable • Partially self-adhesive when hot • Rigidity between Copolymer Polypropylene and LDPE 	<ul style="list-style-type: none"> • Moderate to slight shrinkage • Improved tear resistance over LDPE • Not as easy to over-stretch when hot as LDPE
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Spinal orthoses where moderate to slight rigidity is desired • Upper extremity orthoses • Prosthetic flexible sockets 	300° - 400°F (149° - 205°C)

MATERIAL SAFETY DATA SHEET - MODIFIED POLYETHYLENE

I. General Information

Product Name: Spectrum Polyolefin Sheet - Spectrum S610, 611, 612, 615, 630, 640, 645, 670, 690, and 695

Emergency Telephone Number: 765-935-7541

II. Ingredients

% w/w, unless otherwise noted

Polyethylene	CAS# 9002-88-4	96 - 100%
Various Pigments (see Sec. 7)		0 - 4%

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not "Hazardous" per this OSHA Standard may be listed.

Where proprietary ingredient shows, the identity may be made available as provided in this standard.

III. Physical Data

Boiling Point: Not applicable

Vap. Press: Not applicable

Vap. Density: Not applicable

Sol. in Water: Nil

Sp. Gravity: 0.94 - 0.98

Appearance: Colored solid sheet

Odor: Very slight

IV. Fire & Explosion Hazard Data

Flash Point: Not applicable

Method Used: Not applicable

Flammable Limits

LEL: Not applicable

UEL: Not applicable

Extinguishing Media:

Water fog, Foam, CO₂, Dry Chemical. Application of high velocity water will spread the burning surface layer.

Fire & Explosion Hazard:

Sustained temperatures above 615° F may result in a material breakdown into flammable gaseous products.

This is a surface burning product.

Fire Fighting Equipment

Wear positive-pressure, self-contained breathing apparatus approved by NIOSH or MSHA.

V. Reactivity Data

Stability (Conditions to Avoid): Temperatures over 325° C, 615° F, may release combustible and toxic gases.

Incompatibility (Specific Materials to Avoid): Strong oxidizing materials. May burn or react violently with fluorine-oxygen mixtures with 50 to 100% fluorine.

Hazardous Decomposition Products: Thermal decomposition products may include C, CO, CO₂, H₂O, and organic vapors.

Hazardous Polymerization: Will not occur

VI. Environmental and Disposal Information

Waste Disposal: All recovered material should be packaged, labeled, transported, and disposed or reclaimed in conformance with applicable laws and regulations and in conformance with good engineering practices. Reclaim where possible.

VII. Health Hazard Data

Precautionary Information: Fumes and vapors emitted from the hot plastic during forming operations may condense on cool overhead metal surfaces or structures. That condensate, usually in the form of a soft, grease-like, semi-solid, may contain substances which can be irritating and toxic. Avoid contact of that material with the skin. Wear rubber or other impermeable protective gloves when cleaning contaminated surfaces. Wash hands with soap and water before eating or smoking and at the end of each work day.

Symptoms of Over Exposure:

Acute

Inhalation: Vapors and fumes produced during the forming of these plastics may produce acute health effects in some individuals, especially irritation of the eyes, nose, and throat, and in cases of severe over-exposure, nausea and headache.

Skin Contact: Fumes and vapors emitted from hot plastic during converting operations may condense on cooling overhead metal surfaces or structures. This condensate, usually in the form of a soft, grease-like, semi-solid, may contain substances which can be irritating and toxic. Molten plastics may cause thermal burns.

Eye Contact: Vapors and fumes from hot melt-processing may cause irritation.

Ingestion: Not acutely toxic. Not a probable route of exposure.

Chronic

No known chronic problems.

Restrictive Medical Conditions: Unknown

Primary Routes of Exposure:

Inhalation	Yes	Ingestion	Unlikely
Skin Absorbtion	No	Skin and Eye Contact	Yes

VIII. First Aid Procedures

Inhalation: If affected by vapors, remove to fresh air. Refer to a physician for treatment.

Skin Contact: Molten plastic causes severe burns. Cool rapidly with water and immediately obtain medical attention to remove the cooled plastic.

Eye Contact: Flush immediately with large amounts of water for at least 15 minutes. If irritation persists, contact physician.

Ingestion: Not probable. Keep person warm and at rest. Obtain medical attention.

Certain heavy-metal salts, present as color pigments and based upon cadmium, chromium, copper, lead, or mercury metals, may be present in some colored sheets. Those ingredients are essentially mixed into the plastic and are unlikely to contribute either to pollution of soils and waters or to personnel handling hazards.

IX. Precautions for Safe Handling and Storage

Storage and Handling: Avoid storing near foodstuffs due to the possibility of odor and taste contamination of the food. Do not store near heating devices, hot pipes, etc. With proper ventilation these products can be stored or processed without exposing employees to unacceptable monomer levels. The gaseous emissions from forming and fabrication should not be discharged into the work areas. These materials should be exhausted, under controlled ventilation, to the outside of the building.

Ventilation: Recommended; sufficient to control vapors and odors.

Personal Protective Equipment:

Degree of Exposure	Eye	Skin	Respiratory	Others
Closed System (Remote)	AC	B	None	None
Occasional (Infrequent)	A	B	None	None
Repeated & Prolonged	A	B	C	None

Key for Personal Protective Equipment

- A Safety Glasses
- B Ordinary Work Clothes
- C Half mask w/cartridge

Respiratory Protection: Under conditions of excessive fume concentration, a NIOSH or MSHA approved device with an OVAG (organic vapor acid gas) rating or fresh air supply should be used.

Gloves: Use for hot material.

Effective Date: 1-28-93

SUBORTHOLEN®

ITEM #	DESCRIPTION	SHEET SIZE
766009	1 mm Subortholen Flesh	39" x 39"
766017	2 mm Subortholen Flesh	39" x 39"
766025	3 mm Subortholen Flesh	39" x 39"
766033	4 mm Subortholen Flesh	39" x 39"
766041	5 mm Subortholen Flesh	39" x 39"
766058	6 mm Subortholen Flesh	39" x 39"

FEATURES	CHARACTERISTICS
<ul style="list-style-type: none"> • Vacuum formable 	<ul style="list-style-type: none"> • Opaque • Moderately rigid
USAGE	TEMPERATURE RANGE
<ul style="list-style-type: none"> • Orthotics • Lower Extremity Orthotics • Splints 	350° - 400°F (177° - 204°C)

Subortholen® is a registered trademark of W.J. Teufel, Germany.

PLASTIC WELDING ROD

ITEM #	DESCRIPTION	SHEET SIZE
300-18R	Welding rod, Polypropylene	1/8" x 48" / dozen
300-36R	Welding rod, Polypropylene	3/16" x 48" / dozen
301-36R	Welding rod, Copolymer Polypropylene	3/16" x 48" / dozen
303-36R	Welding rod, High Density Polyethylene	3/16" x 48" / dozen

MATERIAL SAFETY DATA SHEET - SUBORTHOLEN®

Wilh. Jul. Teufel GmbH



Robert – Bosch - Straße 15,

D – 73117 Wangen,

Germany

**MATERIAL SAFETY DATA SHEET (91/155/EEC)
DEHOPLAST**

Page 1 / 3

Date 11/96

Trade name SUBORTHOLEN

1. Material/indication of preparation and company

Trade name:

Subortholen HD-PE High density polyethylene

REF: 70 027 ... ff

Supplier

Wilh. Jul. Teufel GmbH
Robert – Bosch – Straße 15,
D-73117 Wangen
Germany

Phone: 07161 – 15684-0, Fax: 07161 – 15684-222

2. Hazards identification

Hazards identification

No hazardous decomposition products

No hazardous reactions

No protection measures necessary

4. First aid measures

First aid measures

Skin burns caused by melted Polyethylene: Cool with water!
! Consult a doctor !

Further measures : Not necessary

5. Fire fighting measures

Suitable means for fire fighting::

Water
Foam
Gaseous fire extinguisher
Fire-fighting powder
Fine water jet

6. Accidental release measures

Procedure for cleaning/taking up: to be picked up mechanically

7. Handling and storing

Handling: No regulations

Storing:

Storage classification: 11 – inflammable solid materials

Storage stability: at storing temperatures < 40°C and protection against ultraviolet rays unlimited

8. Exposure controls / personal protection

Not necessary:

Breathing equipment

Protection of hands

Eye protection

Other protection

9. Physical / chemical properties

Physical / chemical properties:

Form: Sheets, semimanufacture

Color: According to dying

Odour: Characteristic

Melting point: 135 °C

Flash point: 348°C

Inflammation point: 340°C

Steam pressure: not applicable

Density: 0,93 – 0,95 g/cm³

Solubility in water: insoluble

pH value: not applicable

10. Stability and reactivity

Thermal decomposition: approx. 290 °C

No dangerous reactions known.

No dangerous substances produced by decomposition.

11. Toxicological informations

Disadvantageous effects have not yet become known if the product is handled appropriately. Furthermore polyethylene corresponds to the regulations and recommendations of the Federal Health Department for the contact and application with foodstuffs.

12. Ecological information

The product is insoluble in water and is not damaging to fishes and bacteria. It can be separated of mechanically in sewage plants.

13. Disposal considerations

Disposal must be made according to regular, local regulations, f inst. public dump.
Wast key: 57128 (Germany)
Waste name: polyolefine waste

14. Transport information

RID / ADR / IMDG / IATA : free

15. Regulatory information

Due to our present knowledge the product is no dangerous substance as defined by Annex 1 No. 1.1 of the official gazette for dangerous matters or by the manual of the European community for the classification and identification marking.

16. Other information

This information is based on our present knowledge. However, this shall not be of significane for any specific product features and shall not establish a legally valid contractual relationship.

Plastic Sheet Size Information

Standard Plastic Sheet Sizes:

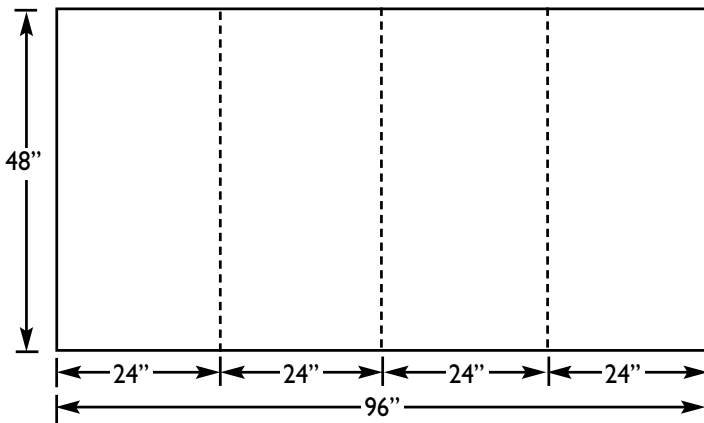
24" x 48"

32" x 48"

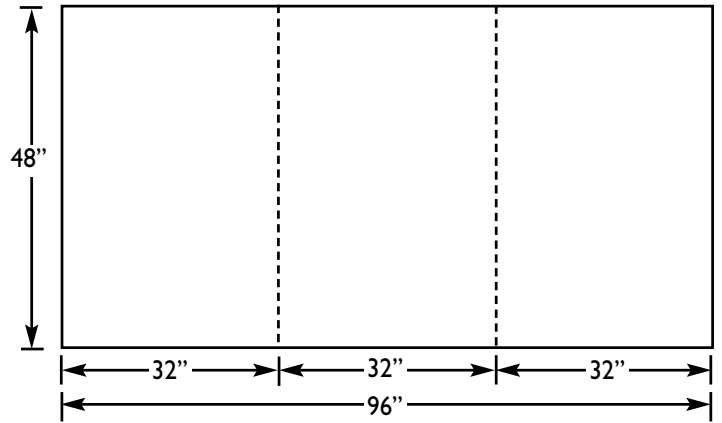
48" x 48"

48" x 96"

4 pcs. of 24" x 48" per 48 x 96 Sheet



3 pcs. of 32" x 48" per 48 x 96 Sheet



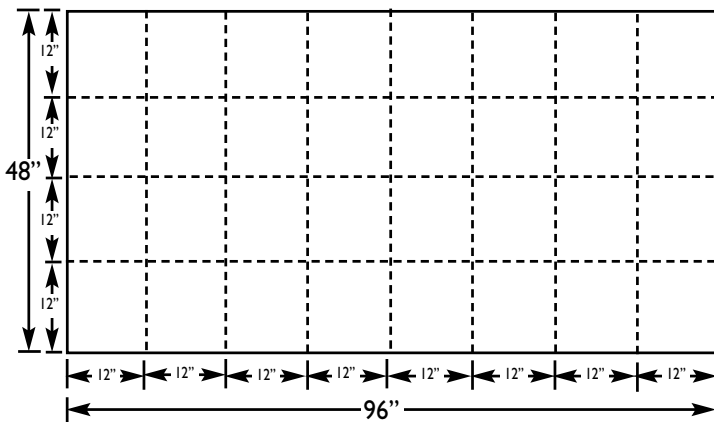
*** 12" x 12"**

and

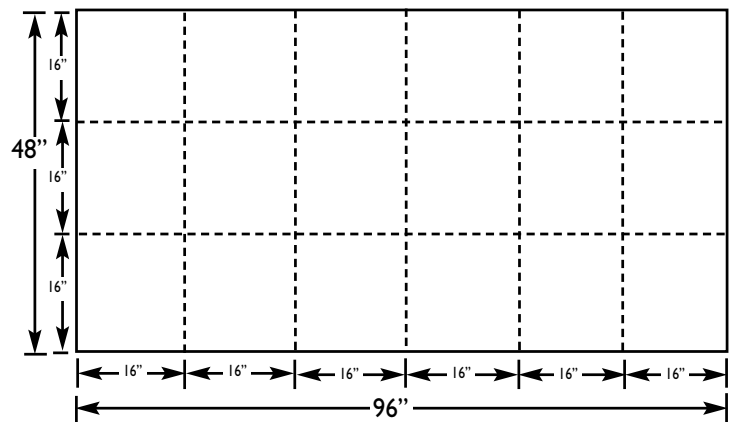
*** 16" x 16"**

***standard size in select plastic gauges**

32 pcs. of 12" x 12" per 48 x 96 Sheet



18 pcs. of 16" x 16" per 48 x 96 Sheet



Custom sizes are available and will be cut from full sheets, 48" x 96".
Piece quantity will be determined according to custom size request.

MEASUREMENT EQUIVALENTS

For Your Conversion Needs

FRACTIONS	DECIMALS	MILLIMETERS
1 /32"	.03125	0.794 mm
1/16"	.0625	1.588 mm
3/32"	.09375	2.381 mm
1/8"	.1250	3.175 mm
5/32"	.15625	3.969 mm
3/16"	.1875	4.763 mm
1/4"	.2500	6.350 mm
3/8"	.3750	9.525 mm
1/2"	.5000	12.700 mm
5/8"	.6250	15.875 mm
3/4"	.7500	19.050 mm



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