

ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE (UHMW-PE)

Tolerances

Gauges

Width/Length

1/2" - 1-1/4" +/- 10%
1-1/2" AND OVER +ONLY

+1/2", -1/4"

Property	Units	ASTM	Nominal Value*
Density	g/cc	D1505	.930
Tensile Strength @ Yield	p.s.i.	D638	>2,800
Elongation @ Break	%	D638	>450
Flexural Modulus	p.s.i.	D790	160,000
Durometer	Shore D	D2240	62
Izod Impact Strength	J/M	D256	No Break
Brittleness Temp.	°C	D746	<-38
Vicat Softening Temp.	°C	D1525	128
Heat Deflection Temp. 66PSI	°C	D648	82
Co-efficient of Linear Ther- mal Expansion	in./in./°F	D696	1.1x10 ⁻⁴

RELATIVE VOLUMETRIC ABRASION

SAND SLURRY TEST*

HY-PACT® S/R-12 POLYMER (UHMW-PE)

12

HY-PACT® S/R-03 POLYMER (VHMW-PE)

40

HIGH DENSITY POLYETHYLENE

110

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Welding Guide

Poly Hi Solidur chemical- and corrosion-resistant polymers can be welded using commercially available hot gas welding equipment.

Shown are some suggested temperatures for our sheet products. However, we encourage you to consult your welding equipment manufacturer for air pressure and temperature settings; adjustments may be necessary from one manufacturer to another.

We propose these temperatures as starting points only, as many variables will affect the quality of welds, such as: volume and quality of air or gas, compatibility of weld rod, and operator technique.

Testing Weld Strength. A suggested testing procedure for both strength of the weld and welder operator proficiency is ASTM C 1147-90, "Standard Practice for Tensile Performance of Hand Welded Chemical Resistant Rigid Thermoplastics."

Welding Rod Sizing

Base Material Thickness	Welding Rod Size
1/16"	1/8"
1/8"	1/8"
3/16"	3/16"
1/4"	3/16" - three beads
1/2" and up	5/32 or 3/16" multiple beads

Suggested Welding Temperatures

Material	Temperature ¹
High Density Polyethylene	300°C
Proteus™ Homopolymer Polypropylene	320°C
Proteus White Polypropylene	310°C
Proteus White Flame Retardant 18G Polypropylene	310°C
Proteus Copolymer Polypropylene	305°C
Low Density Polyethylene	270°C ²
PVC	320°C ³
Corzan® CPVC	360°C ³

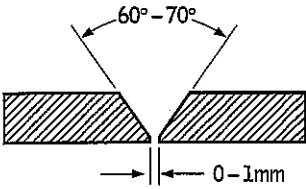
¹ Temperatures were measured with a pyrometer approximately 3/16" inside the welder tip.

² Temperature courtesy of Wegener North America.

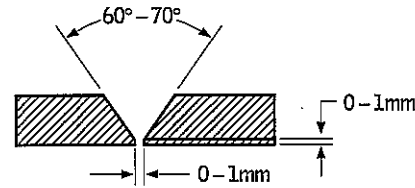
³ Temperature courtesy of BF Goodrich.

Welding Guide

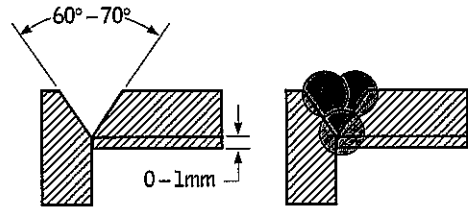
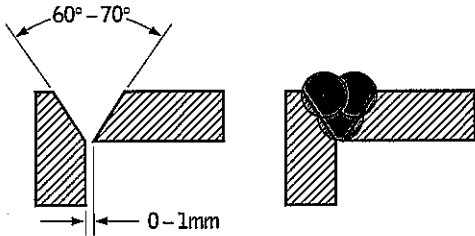
Typical Welded Joint Configurations



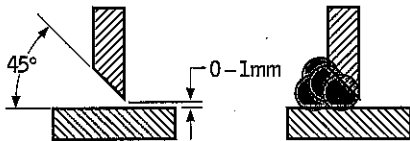
Single "V" without opposite bead



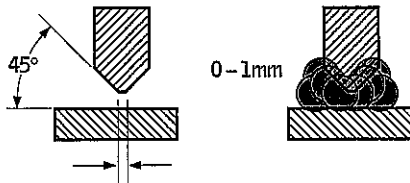
Single "V" with opposite bead



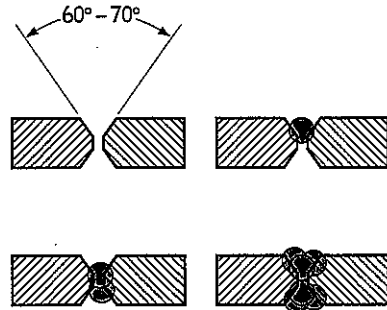
Single "V" as a corner joint



Half "V"



Double half "V"



Double "V"



Sheet warpage caused by shrinkage during cooling process



"Pre-bending" prior to weld



After welding, the sheet pulls itself straight

UHMW TUBE SIZES

Stock Number	OD in inches	ID in inches
ET 080	0.875	0.250
ET 085	0.875	0.375
ET 100	1.000	0.500
ET 101	1.000	0.750
ET 102	1.000	0.625
ET 103	0.750	0.375
*ET 111	1.000	0.563
ET 125	1.250	0.625
*ET 126	1.250	0.563
ET 127	1.250	1.000
ET 130	1.375	0.625
ET 131	1.375	0.750
ET 132	1.375	1.000
ET 151	1.500	0.500
ET 152	1.500	1.000
ET 154	1.500	1.125
ET 160	1.625	1.250
ET 180	1.875	1.125
ET 181	1.875	1.250
ET 200	2.000	1.000
ET 201	2.000	1.500
ET 202	2.000	1.250
*ET 204	2.000	1.375
ET 203	2.000	1.750

Stock Number	OD in inches	ID in inches
ET 210	2.250	1.750
ET 220	2.250	1.875
ET 230	2.375	1.750
ET 251	2.500	1.500
ET 252	2.500	2.000
ET 253	2.500	1.000
ET 260	2.625	2.250
ET 270	2.750	2.000
ET 300	3.000	2.000
ET 301	3.000	2.500
*ET 305	3.000	2.625
ET 310	3.125	2.750
ET 350	3.500	2.500
ET 351	3.500	3.000
ET 400	4.000	3.000
ET 401	4.000	3.500
ET 451	4.500	4.000
ET 500	5.000	4.000
ET 501	5.000	4.500
*ET 549	5.500	4.375
ET 551	5.500	4.750
ET 625	6.250	5.750
ET 860	8.625	7.875
*ET 950	9.500	8.250

Color: Natural (White)

Standard lengths:
10 feet

Meets ASTM D-4020-01a of
4.0 to 5.4-million molecular
weight

Meets FDA Requirement
for food contact
(Regulation 21CFR177.1520)

USDA Compliant

Meets 3-A Dairy Sanitary
Standard Procedure No. 20-21