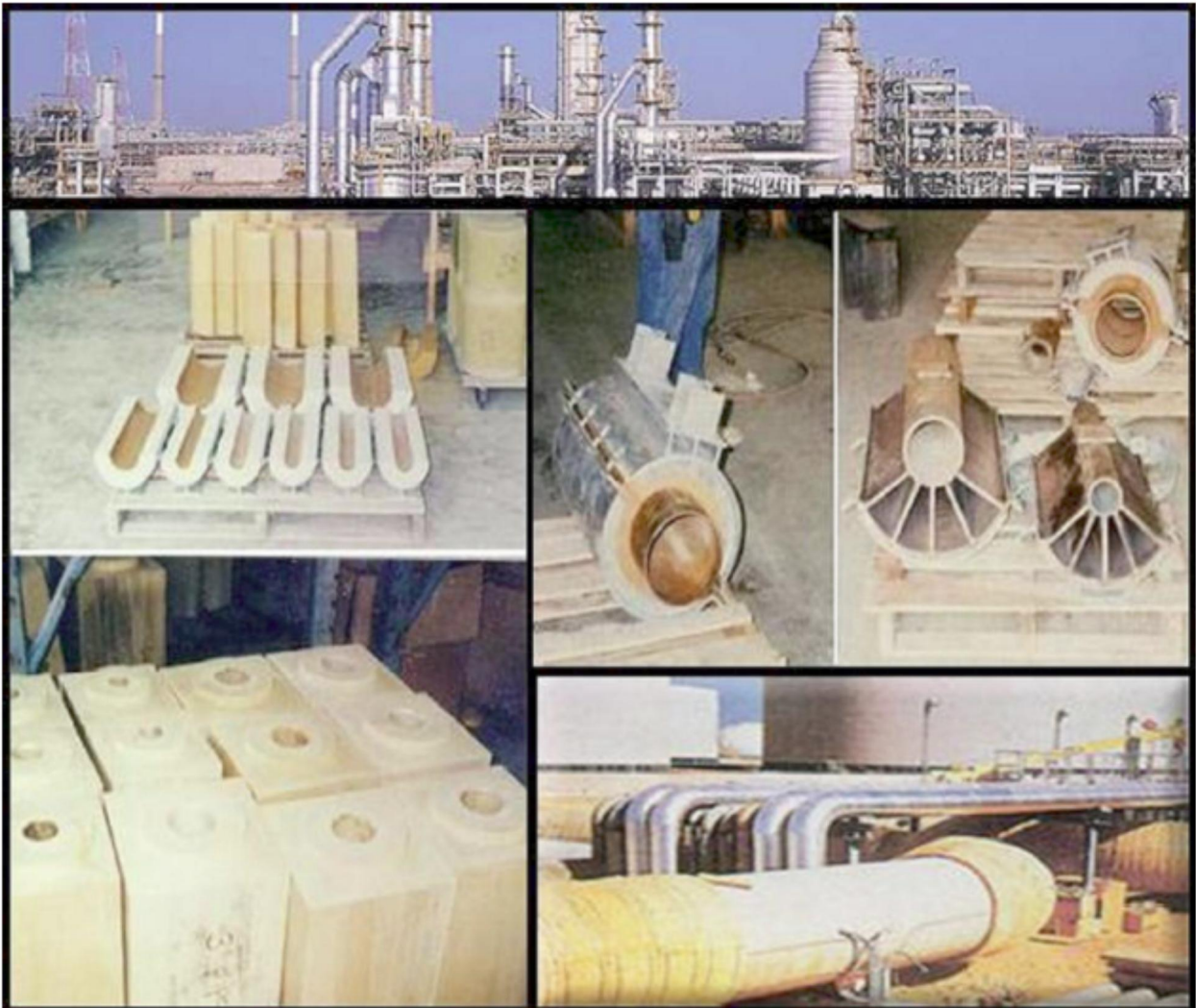


Multipuf Polyurethane/PolyIsocynurate
High Density Pipe/Equipment Supports

MP

MULTI PRODUCTS

Multipuf Polyurethane / PolyIsocynurate
High Density Pipe / Equipment Supports



Introduction to Multipuf Polyurethane High Density Supports

CRYOGENIC INSULATED PIPE SUPPORTS

MULTI PRODUCTS has complete manufacturing capability to mold monolithic high density rigid polyurethane foam supports in pipe sizes ranging from 1/2" through 72". We are able to vary our basic chemical formulas [basic raw material imported from Bayer or Huntsman or DOW or BASF or Mitsui other internally reputed formulators] to produce the broadest range of urethane molded products specifically designed for the exacting requirements for cryogenic service. Our customers are guaranteed rigid polyurethane foam molded to the highest quality control standards.

High density MultiPUF Polyurethane support is molded to possess a unique cellular structure. Due to the roundness of the cells as well as the heavy cell wall thickness, the compaction typical of some cellular foams under cryogenic temperatures are eliminated. Under cryogenic conditions the gas within the cells contracts, liquefies or solidifies while the cell wanes maintain the integrity of support. At cryogenic temperatures each cell develops a partial vacuum resulting in excellent insulating properties.

MultiPUF will not change significantly in compression strength or aging characteristics in temperature range from -185 through +150 deg. cent. This means the pipelines engineer is assured of constant efficiency of the insulated pipe supports in addition; high density foams normally have higher "K" factors at ambient temperatures than low density insulation foams. However, at cryogenic temperatures the thermal conductivity is about the same for low density foams as our higher density MultiPUF

MultiPUF can be molded to different shapes & designs, depending upon the anchor [saddle] or hanger design. Enclosed in the annexure "Pipe Support Designs" is how different designs of the pipe supports that can be manufactured by the Company. The MultiPUF pipe supports can be offered in density varying from 60 kg./m³ to 600 kg./m³.

The Company has taken the lead in the manufacturing High Density Polyurethane Pipe Supports for the Indian markets with list of prestigious orders executed for various mage projects. Please find enclosed copies of orders already executed.

The Company's most modern new manufacturing facility combined with state-of-art high pressure plant from POLYCRAFT-PUF MACHINE PVT. LTD. leaves an edge over other manufacturers. The Pipe Supports are molded in steel mould fabricated at Company's factory, exactly as per the design and dimensions requirements and are not cut to size as molded supports have an high performance edge over the cut supports as explained in the chapter "Molded to Cut Supports - Unanimous Advantage".

MultiPUF pipe supports are tested for quality and specifications, from every batch, at the factory, before dispatch. On request, the samples are also sending for testing to leading government .

MultiPUF Pipe Supports - PROPERTIES

PROPERTY	TEST	UNIT	
	STANDARD		
OVERALL DENSITY		Kg./m3	240
CORE DENSITY	ASTM D1622	Kg./m3	230
COMPRESSIVE STRENGTH	ASTM D1621		
AMBIENT			
- PARALLEL X		Mpa	3.7
- PERPENDICULAR Y		Mpa	4.0
- PERPENDICULAR Z		Mpa	4.0
- 196 DEG. CENT.			
- PARALLEL X		Mpa	9.1
- PERPENDICULAR Y		Mpa	10.4
- PERPENDICULAR Z		Mpa	8.6
COMPRESSIVE MODULUS	ASTM D1621		
AMBIENT			
- PARALLEL X		Mpa	79.9
- PERPENDICULAR Y		Mpa	79.7
- PERPENDICULAR Z		Mpa	82.6
- 196 DEG. CENT.			
- PARALLEL X		Mpa	145.0
- PERPENDICULAR Y		Mpa	176.0
- PERPENDICULAR Z		Mpa	164.0
DIMENSIONAL STABILITY	ASTM D2126		
- 15 DEG. CENT.		%	0.0
- 100 DEG. CENT.		%	0.2
THERMAL CONDUCTIVITY	ASTM C518		
@ 23 DEG. CENT. MEAN TEMP.		W/m Deg. Cent	0.033
@ -160 DEG. CENT. MEAN TEMP.		W/m Deg. Cent	0.022
CLOSED CELL CONTENT	ASTM D2856	%	97.0
COEFFICIENT OF LINEAR THERMA	ASTM D696		
EXPANSION (-123 TO 46 Deg. Cent.)		K-6.3 x 10	
ASSESSMENT OF THE HORIZONT	BS 4735		
BURNING CHARACTERSISTICS OF			
CELLULAR PLASTICS			
- BURN LENGTH		mm	10
- BURN TIME		s	1
LEACHABLE CHLORIDE CONTENT	ASTM C871	ppm	<25

PROPERTIES
Comparison of Different Pipe Support Materials

PRODUCT	DENSITY KG/M3	“K” value AT 10 C W/MK	MAX TEMP C	MIN TEMP C	% CLOSED CELLS	MVT PERM INCH	FIRE RATING	SMOKE EMMISSION
PUR/RIGID URETHANE FOAM	80	0.027	110	-185	90	3	CLASS P	LOW
	120	0.031	110	-185	90	3	BS476/5	
	160	0.033	110	-185	90	3		
CORK	120	0.04	110	-180			POOR	HIGH
CALCIUM SILICATE							NONE	
	210	0.052	650	10			COMBUSTIBLE	
HARDWOOD OAK MAHOGANY								
	740	0.0159	65	0			POOR	HIGH
	560	0.0144						NO FIGURES
CROCODILE STRIPS								
		0.07	65	10			POOR	VERY HIGH

APPLICATION AREAS

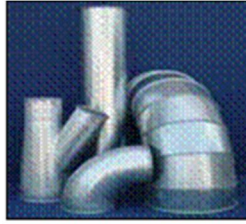
Refineries



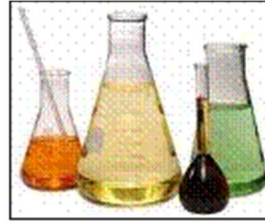
Oil & natural Gas



Ducting



Chemical



Petrochemicals



Distilleries



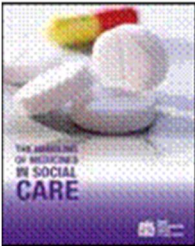
Electricity



Telecommunication



Pharmaceutical



Fertilizer



Cold storage



Dairy

