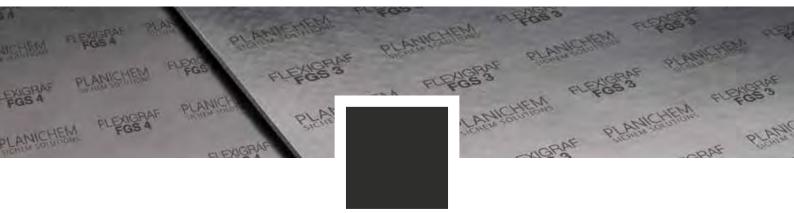
Flexigraf[®] Unigraph[®]







Planichem is an Italian manufacturing company specialised in the processing of PTFE, graphite and all the main asbestos-free materials used for the production of gasketing materials, gaskets and semi finished products of high technical value.

The company's current structure has resulted from progressive developments over the years which have led to the engineering of unique processing and manufacturing methods.

Planichem manufactures leading-edge products and innovative solutions which are protected by international patents.

Planichem's underlying goal is to provide the best quality, as certified by all major independent examination institutes.

Our products are our best guarantee suitable for all types of customers and applications, both standard and critical.

For a detailed list of the approvals, please visit our dedicated area on www.planichem.com



Planichem has developed two families of graphite-based products manufactured with different grades of graphite in terms of purity and sulphur contents, which are able to seal a wide range of chemicals at extreme temperatures and pressures. All our products are available with added corrosion and oxidation inhibitors.

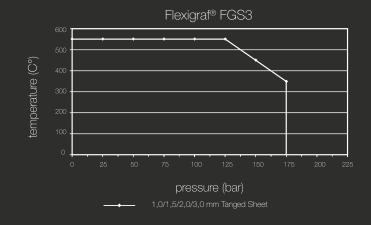
Flexigraf[®] FGS is the range of products based on high purity graphite laminate reinforced with stainless steel, nickel, aluminium, and many other materials. This product family is particularly suitable far the sealing of saturated steam at high temperature and of aggressive non-oxidising chemical agents, up to 700° C and pressures of 200 bar. MULTIFLEX is the multilayers solution which endows this material with excellent resistance up to a pressure of 300 bar.

Unigraph[®] is the family of products based on high purity graphite which are available in different densities, compressed and coated with special technopolymers to withstand high temperatures. This product family offers exceptional ease of processing and cutting and is suitable far the sealing of saturated steam even at high temperature and of aggressive non-oxidising chemical agents, up to of 650° C and pressures of 1 20 bar.



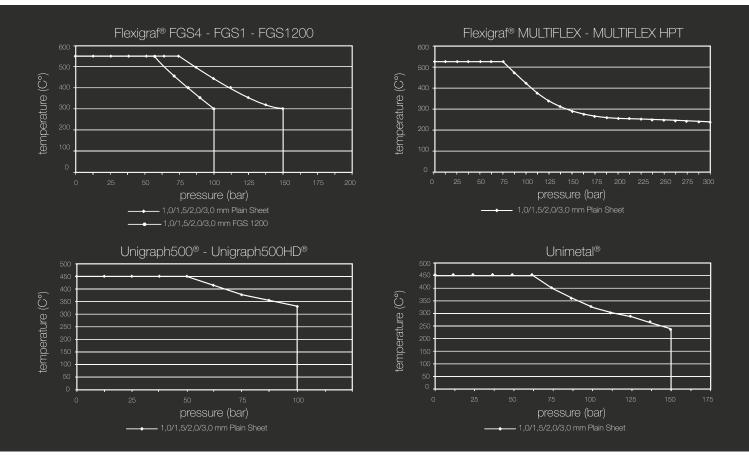
Flexigraf[®] and Unigraph[®] graphite based gasketing materials suitable for demanding applications at higher temperatures.

FLEXIGRAF®	FGS3	FGS4	FGS1		
Colour	Q	Q	Graphite laminate reinforced with a pure nickel foil core		
Composition	Graphite laminate reinforced with a tanged stainless steel core	Graphite laminate reinforced with a flat stainless steel core			
Density DIN 28090-2 (g/cm3)	1,2 - 1,5	1,15 - 1,45	1 - 1,2		
Min/Max recommended Peak Temperature (°C)	-200/+550	-200/+550	-200/+550		
Max operating pressure (Bbar)	200	150	150		
Leakage DIN 3535-6 (mg*s-1*m-1)	≤ 0,1	≤ 0,1	≤ 0,1		
Creep relaxation DIN 3535-6 (%)	≤ 5	≤5	≤ 5		
Conformability DIN 3535-6 (%)	30 - 45	30 - 45	30 - 45		
Recovery DIN 3535-6 (%)	3 - 7	3 - 7	3 - 7		
Availability					
Sheets size (mm)	1.500x1.500 1.000X1.000 1.500X1.000	1.500x1.500 1.000X1.000 1.500X1.000	1.500x1.500 1.000X1.000 1.500X1.000		
Thickness (mm)	0,5 to 3	0,5 to 3	0,5 to 3		
Tolerances					
Sheets size (mm)	+/- 50	+/- 50	+/- 50		
Thickness (%)	+/- 10	+/- 10	+/- 10		



For a detailed list of approvals, please visit the dedicated area on our website www.planichem.com

FGS1200	MULTIFLEX	MULTIFLEX HPT	UNIGRAPH 500	UNIGRAPH 500 HD	UNIMETAL			
Q	Q	Ô		Ô	Ô			
Graphite laminate reinforced with a pure alluminium alloy core	Graphite laminate reinforced with a flat stainless steel multilayers core	Graphite laminate reinforced with a tanged stainless steel multilayers core	Graphite based with polymer coating both sides	Graphite based with polymer coating both sides	Graphite based wire mesh reinforced with polymer coating both sides			
1 - 1,2	1,3 - 1,6	1,4 - 1,6	0,9 - 1,1	1,3 - 1,5	0,9 - 1,1			
-200/+550	-200/+550	-200/+550	-200/+450	-200/+450	-200/+450			
100	100 300		100	100	150			
≤ 0,1	≤ 0,1 ≤ 0,1		≤ 0,1	≤ 0,1	≤ 0,1			
≤ 5	≤ 5 ≤ 5		≤8	≤8	≤8			
30 - 50	30 - 50 30 - 45		40 - 50	25 - 35	40 - 50			
3 - 7	3-7 3-7 3-7 3-7		3 - 7	3 - 7				
1.500x1.500 1.000X1.000 1.500X1.000 0,5 to 3	000X1.000 1.000X1.000 1.0 500X1.000 1.500X1.000 1.5		1.500x1.500 1.500X1.000 0,5 to 3	1.500x1.500 1.500X1.000 0,5 to 3	1.500x1.500 1.500X1.000 0,5 to 3			
+/- 50 +/- 10			+/- 50 +/- 10	+/- 50 +/- 10	+/- 50 +/- 10			



Other sheet sizes and thicknesses available upon request.

Maximum temperature and pressure values cannot be used simultaneously.

Typical parameters of 1.5 mm thickness jointing.

Chemical compatibility guide for Flexigraf® and Unigraph®

	UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1		UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1		UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1
Acetaldehyde Acetamide	:	:	:	•	Calcium Hydroxide Calcium Hypochlorite			:	•	Ethyl Acrylate Ethyl Alcohol	:	•	•	•
Acetic Acid Acetic Anhydride	:	:	:		Calcium Nitrate Cane Sugar Liquors			•	•	Ethylbenzene Ethyl Carbamate	:	•	•	•
Acetone Acetonitrile	:	:	:		Caprolactam Captan					Ethyl Cellulose Ethyl Chloride	:	•	•	
Acetophenone	•	•		•	Carbary	•	•		•	Ethyl Ether	•			0
Acetylaminofluorene Acetylene	:	•	•	•	Carbolic Acid, Phenol Carbon Dioxide, Dry			•	•	Ethyl Hexoate Ethylene	•	•	•	
Acrolein Acrylamide	:	•	•		Carbon Dioxide, Wet Carbon Disulfide			:		Ethylene Bromide Ethylene Dibromide	:	•	•	
Acrylic Acid	•	•		•	Carbon Monoxide	•	•	•	•	Ethylene Dichloride	•	•	•	
Acrylic Anhydride Acrylonitrile	:	•	•	•	Carbon Tetrachloride Carbonic Acid			•	•	Ethylene Glycol Ethyleneimine	:	•	•	
Adipic Acid Adiponitrile	:	•	•	•	Carbonyl Sulfide Castor Ol		•	•		Ethylene Oxide Ethylene Thiourea	:	:	•	
Air	•	•	•	•	Catechol	•	•		•	Ethylidine Chloride	•	•	•	•
Alyl Acetate Alyl Chloride	:	•	•	•	Caustic Soda Cetane (Hexadecane)		•	•	•	Ferric Chloride Ferric Phosphate	•	•	•	
Alyl Methacrylate Aluminum Chloride	:	•	•	•	China Wood Oil Chloramben		•	•	•	Ferric Sulfate Fluorine, Gas	:		:	
Aluminum Fluoride			•	•	Chlorazotic Acid (Aqua Regia)	•	•	•	•	Fluorine, Liquid	•	•	•	•
Aluminum Hydroxide (Solid) Aluminium, Molten		•	•	•	Chlordane Chlorinated Solvents, Dry		•	•		Fluorine Dioxide Formaldehyde	:	•	•	
Aluminum Nitrate Aluminum Sulfate	:	:	•		Chlorinated Solvents, Wet Chlorine, Dry		•	•	•	Formic Acid Fuel Oil	:	:	•	:
Alums	:	•			Chlorine, Wet	:	•	•	•	Fuel Oil, Acid			•	•
Aminodiphenyl Ammonia, Gas, 70°C and below	:	•	•	•	Chlorine Dioxide Chlorine Trifluoride		•	•	•	Gasoline, Refined Gelatin	:		:	•
Ammonia, Gas, Above 70°C Ammonia, Liquid, Anhydrous	:	•	:		Chloroacetic Acid Chloroacetophenone			•		Glucose Glycerine, Glycerol	:		:	
Ammonium Chloride	:	:	•		Chlorobenzene		•	•		Glycol	•	•	•	•
Ammonium Hydroxide Ammonium Nitrate				•	Chlorobenzilate Chloroethane		•			Grain Alcohol Grease, Petroleum Base		•	•	
Ammonium Phosphate, Monobasic Ammonium Phosphate, Dibasic	:		:	•	Chloraethylene Chloroform		•	•	•	Green Sulfate Liquor Heptachlor	:	•	•	•
Ammonium Phosphate, Tribasic Ammonium Sulfate	:	:	•	•	Chloromethyl Methyl Ether (OMME) Chloronitrous Acid (Aqua Regia)		•	•		Heptane Hexachlorobenzene	:	•	•	
Amyl Acetate			•	•	Chloroprene		•	•	•	Hexachlorobutadiene		•	•	•
Amyl Alcohol Aniline, Aniline Oil	:		:	•	Chlorosulfonic Acid Chromic Acid			:	•	Hexachlorocyclopentadiene Hexachloroethane	:	•	•	
Aniline Hydrochloride Aniline Dyes	•	•	•	•	Chromic Anhydride Chromium Trioxide		•	•	•	Hexadecane Hexamethylene Diisocyanate	:	•	•	
Anisidine	•			•	Citric Acid	•	•	•	•	Hexamethylphosphoramide	•	•	•	•
Antinomy trichloride Aqua Regia	:	•	•		Coke Oven Gas Copper Chloride		•	•	•	Hexane Hexone	:	•	•	
Aroclors or Arochlor Aromatic Hydrocarbons	:	•	•	•	Copper Sulfate Com Oil		•	•	•	Hydraulic Oil, Mineral Phosphate Esters	:	•	•	•
Arsenic Acid Arseneous Acid	:	•	•	•	Cotton Seed Oil 10 Creosote		•	•	•	Hydrazine Hydrobromic Acid	:	•	•	•
Asphalt	•	•	•	•	Cresols, Cresylic Acid	•	•	•	•	Hydrochloric Acid	•	•	•	•
Aviation Gasoline Barium Chloride	:	•	•	•	Crotonic Acid Crude Oil		•	•	•	Hydrochloric Acid, dry Hydrochloric Acid 20%	•	•	•	
Barium Hydroxide Barium Sulfide	:		:		Cumene Oydohexane		•	•	•	Hydrocyanic Acid Hydrofluoric Acid, Anhydrous	:	•	•	•
Baygon Beer	:	•	:		Cyclohexanol Cyclohexanone		•	•		Hydrolluoic Acid, Less then 65%, Above 70°C Hydrolluoic Acid, 65% to Arrhydrous Above 70°C		•	•	
Benzaldehyde					Diazomethane			•	•	Hydrofluoric Acid, Up to Anhydrous, 70°C & below			•	
Benzene, Benzol Benezene Sulphonic Acid	:		•	•	Dibenzofuran Dibenzylether		•	•		Hydrofluorosilicic Acid Hydrofluosilicic Acid	:		•	
Benzidine Benzoic Acid	:	•	•		Dibromo chloropropane Dibromoethane		•			Hydrogen Hydrogen Bromide	:	•	•	•
Benzonitrile	•	•		•	Dibutyl Phthalate	•	•		•	Hydrogen Fluoride	•		•	
Benzoquinones Benzotrichloride	•	•	•	•	Dibutyl Sebacate Dichlorobenzene		•	•	•	Hydrogen Peroxide, 10% Hydrogen Peroxide, 10-90%			•	
Benzoyl Chloride Benzyl Alcohol	:	•	•	•	Dichlorobenzidene Dichloroethane		•	•	•	Hydrogen Sulfide, Dry or Wet Hydroquinone	:		•	•
Benzyl Chloride Bio-diesel (B100)	•	•	•		Dichloroethylene Dichloroethyl Ether	:	•	•	•	lodine Pentafluoride Iodomethane	•	•	•	
Biphenyl	•	•		•	Dichloromethane			•		Isobutane		•	•	
Bis(2-chloroethyl)ether Bis(chloromethyl)ether	:	•	•		Dichloropropane Dichloropropene		0 0	•	•	Isooctane Isophorone	:		•	•
Bis(2-ethylhexyl)phthalate Black Sulfate Liquor	:	•		•	Dichlorvos Diesel Oil		•			Isopropyl Alcohol Jet Fuels	:	:	:	
Blast Furnace Gas		•	•		Diethanolamine				•	Kerosene	•	•	•	•
Bleach (Sodium Hyprochlorite) Boller Feed Water	:	•	•	•	Diethylaniline Diethyl Carbonate		•	•	•	Lacquer Solvents Lacquers	:	•	•	
Borax Boric Acid	•	•	:	•	Diethyl Sulfate Dimethoxybenzidene		•	•	•	Lactic Acid, 70°C and below Lactic Acid, Above 70°C	•	•	•	
Brine (Sodium Chloride)		•	•	•	Dimethylaminoazobenzene Dimethylaminoazobenzene		•	•	•	Lime Saltpeter (Calcium Nitrates)	•	•	•	•
Bromine Trifluoride	•	•	•	•	Dimethylbenzidine	•	•			Lindane Linseed Oil		•		•
Bromoform Bromomethane	:	•	•	•	Dimethyl Carbamoyl Chloride Dimethyl Ether		•	•	•	Liquified Petroleum Gas Lithium Bromide	•	•	•	•
Butadiene Butane	:	:	:		Dimethylformamide Dimethyl Phthalate			•		Lithium, Elemental Lubricating Oils, Refined	:		•	
Butanone	•		•	•	Dimethyl Sulfate	•	•	•	•	Lubricating Mineral or Petroleum Types	•		•	•
Butyl Acetate Butyl Alcohol, Butanol	:	•	:	•	Dinitrophenol Dinitrotoluene		•	•		Sour Lye	:		•	•
Butyl Amine tert-Butyl Amine	:	•	•	•	Dioxane Epichlorohydrin		•	•	•	Magnesium Chloride Magnesium Hydroxide	:		•	•
Butyl Methacrylate			•		E85 (85% Ethanol, 15% Gas)	•	•			Magnesium Sulfate Maleic Acid	•	•	•	•
Butyric Acid Calcium Bisulfite	•	:	•	•	Epoxybutane Ethane		•	•	•	Maleic Anhydride	:	:	•	•
Calcium Chloride	•	•		•	Ethers	•	•	•	•	Mercuric Chloride			•	

All technical data is based on laboratory tests. Planichem reserves the right to modify the characteristics of its entire product range without obligation to anyone.



	UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1		UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1		UNIGRAPH 500 UNIGRAPH 500 HD	FGS3 - FGS4 - MULTIFLEX MULTIFLEX HPT UNIMETAL	FGS 1200	FGS1
Vethane Vethanol, Methyl Alcohol	:	:	•	•	Potassium Acetate Potassium Bichromate	:	•	•	•	Stearic Acid Stoddard Solvent	:	:	•	•
Viethoxychlor Viethvlacrvlic Acid	:		•		Potassium Chromate, Red Potassium Oyanide	:	:	:	•	Styrene Styrene Oxide		:	•	
Vethyl Alcohol	•	•	•		Potassium Dichromate		•	•	•	Sugar			•	
Aethylaziridine Aethyl Bromide	•	•			Potassium, Elemental Potassium Hydroxide		•	•		Sulfur Chloride Sulfur Dioxide		:	•	•
/lethyl Chloride	•	•	•	•	Potassium lodide	•	•		•	Sulfur, Molten	•	•	٠	•
vlethyl Chloroform 1,4-Methylene-Bis(2-chloroaniline)	:				Potassium Nitrate Potassium Permanganate			:		Sulfur Trioxide, Dry Sulfur Trioxide, Wet			•	
Aethylene Chloride Aethylene Dianiline	:		:		Potassium Sulfate Producer Gas	1 :		•		Sulfuric Acid, 10%, 70°C and below Sulfuric Acid, 10%, Above 70°C			•	
Aethylene Diphenyldiisocyanate	•	•	•		Propane		•	•	•	Sulfuric Add, 10-75%, 260°C and below	•	•	•	•
Aethyl Ethyl Ketone (MEK) Aethyl Hydrazine	:		•		Propane Sultone Beta-Propiolactone	1 :	:	•	•	Sulfuric Acid, 75-98%, 70°C and below Sulfuric Acid, 75-98%, 70°C to 260°C			:	
Aethyl lodide	•	•	•	•	Propionaldehyde	•	•		•	Sulfuric Acid, Sulfuric Acid, Fuming	•	•	•	•
1ethyl Isobutyl Ketone (MIBK) 1ethyl Isocyanate	:		:		Propyl Alcohol Propyl Nitrate			•	•	Sulfurous Acid Tannic Acid				
1ethýl Methacrylate 1ethyl Pyrrolidone	:	•	•	•	Propylene		•	•	•	Tartaric Acid		•	•	
1ethyl Tert, Butyl Ether (MTBE)					Propylene Dichloride Propylene Glycol					TCDB-p-Dioxin Tertiary Butyl Amine			•	
/ilk /ineral Oils	:		:		Propylene Oxide Propylenimine	:	•	•	•	Tetrabromoethane Tetrachlorethane		:	•	
folten Alkali Metals	•	•		•	Prussic Acid, Hydrocyanic Acid	•	•		•	Tetrachloroethylene	•			•
fonomethylamine furiatic Acid	:		•		Pyridine Quinoline		•	•		Tetrahydrofuran, THF Thionyl Chloride			•	
laphtha	•		•	•	Quinone		•		•	Titanium Sulfate Titanium Tetrachloride	•		•	
laphthalene laphthols	:				Refrigerant type 10 Refrigerant type 11		•			Toluene			•	
latural Gas lickel Chloride	:				Refrigerant type 12 Refrigerant type 13	1 :	•			Toluenediamine Toluenediisocyanate		:		
lickel Sulfate	•	•	•	•	Refrigerant type 13B1		•		•	Toluene Sulfonic Acid	•	•	•	
itric Acid, Less than 30% itric Acid, Above 30%	•		:		Refrigerant type 21 Refrigerant type 22			•	•	Toluidine Toxaphine			•	
tric Acid, Crude	•	•	•	•	Refrigerant type 23	•	•		•	Transformer Mineral Oil	•	•	•	•
tric Acid, Red Fuming trobenzene	:		•		Refrigerant type 31 Refrigerant type 32			•		Transmission Fluid A Trichloroacetic Acid			•	
trobiphenyl tro-Butanol	•	•			Refrigerant type 112 Refrigerant type 113	:		•	•	Trichlorobenzene Trichloroethane		:	•	:
itrocalcite (Calcium Nitrate)	•	•		•	Refrigerant type 114		•		•	Trichloroethylene	•	•	•	
itrogen Itrogen Tetroxide	:		:	•	Refrigerant type 114B2 Refrigerant type 115			•	•	Trichlorophenol Tricresylphosphate		:	•	
itrohydrochloric Acid (Aqua Regia)	•	•	•	•	Befrigerant type 123	•	•		•	Triethanolamine	•	•	٠	•
litromethane -Nitro-2-Methyl Propanol	:		•		Refrigerant type124 Refrigerant type 125		•	•	•	Triethyl Aluminum Triethylamine			•	
litromuriatic Acid (Aqua Regia) litrophenol	:		:		Refrigerant type 134a Refrigerant type 141b	1 :		•	•	Trifluralin Trimethylpentane		:	•	
litropropane	•	•	•		Refrigerant type 142b		•		•	Turpentine	•	•	•	
litrosodimethylamine litroso Methylurea	:				Refrigerant type 143a Refrigerant type 152a					Urea, 70°C and below Urea, above 70°F		:	•	
litrosomorpholine	•	•			Refrigerant type 218	:	•		•	Varnish	:	•	•	0
lorge Niter (Calcium Nitrate) Iorwegian Saltpeter (Calcium Nitrate)					Refrigerant type 290 (Propane) Refrigerant type 500					Vegetable Oil Vinegar			•	
Octadecyl Alcohol Octane	:		•		Refrigerant type 502 Refrigerant type 503	:			•	Vinyl Acetate Vinyl Bromide			•	
il, Petroleum	•	•		•	Refrigerant type 507	•	•		•	Vinyl Ohloride	•			•
Nis, Animal and Vegetable Neic Acid	:		•		Refrigerant type 717 (Ammonia) Refrigerant type 744 (Carbon Dioxide)		•	•	•	Vinylidene Chloride Vinyl Methacrylate			•	
Neum	:		•	•	Refrigerant type C316	1		:	•	Water, Acid Mine, with Oxidizing Salt		:	•	
Irthodichlorobenzene Ixalic Acid	•		•	•	Refrigerant type C318 Refrigerant type HP62		•		•	Water, Acid Mine, No Oxidizing Salts Water, Distilled			•	
xygen, Gas (BAM Approval) zone	:		:		Refrigerant type HP80 Refrigerant type HP81	1 :	•			Return Condensate Seawater		:	•	
almitic Acid	•	•		•	Salt Water	•	•	•		Tap Water	•	•	•	•
araffin arathion	:		:		Saltpeter, Potassium Nitrate Sewage			•		Whiskey and Wines Wood Alcohol		:	•	
araxylene	:	•	•	•	Silicon Oil Silver Nitrate	0	:	•	•	Xylene Zinc Chloride	:	:	•	:
entachlorophenol					Soda Ash, Sodium Carbonate			:		Zinc Unloride Zinc Sulfate			•	
entane erchloric Acid	:		:		Sodium Bicarbonate, Baking Soda Sodium Bisulfate (Dry)	:		:	•					
erchloroethylene	•				Sodium Bisulfite		•	•	•					
stroleum Olls, Crude stroleum Olls, Refined	:	•	•		Sodium Chlorate Sodium Chloride	:		:	•					
nenol	•	•	•		Sodium Oyanide			•	•					
nenylenediamine nosgene					Sodium, Elemental Sodium Hydrogen Sulphite									
nosphate Esters nosphine	:				Sodium Hydroxide Sodium Hypochlorite			:						
nosphoric Acid, Crude	•	•	•	•	Sodium Metaborate Peroxyhydrate	•	•	•	•					
rosphoric Acid, Pure, Less than 45% rosphoric Acid, Pure, Above 45%,	:		:		Sodium Metaphosphate Sodium Nitrate			•	•					
rospinaric Acid, Rue, Above 45%, Above 70°C	•		•		Sodium Perborate Sodium Peroxide	•		:						
nosphorus, Elemental nosphorus Pentachloride					Sodium Phosphate, Monobasic		•							
nthalic Acid hthalic Anhydride	:		•	•	Sodium Phosphate, Dibasic Sodium Phosphate, Tribasic	:	:	:	*					
icric Acid, Molten	•	:	•	•	Sodium Silicate		•	•						
cric Acid, Water Sclution nene	:		•	•	Sodium Sulfate Sodium Sulfide	:		:	•					
iperidine	•				Sodium Superoxide	•	•			 SUITABLE 				
olyacrylonitrile olychlorinated Biphenyls	:		•	•	Sodium Thiosulfate Soybean Oil		•	•	•					
	•		•	I .	Stannic Chloride	•	•	•	· • ·	DEPENDS ON OPERATING	JUNDING	JND GNIC		
otash, Potassium Carbonate otassium Acetate	•				Steam, Saturated		•		•	 UNSUITABLE 				

For a detailed list of approvals, please visit the dedicated area on our website www.planichem.com





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