



MACER

NON ASBESTOS JOINTING SHEETS





MACER INDUSTRIES

All information and recommendations given in this brochure are correct to the best of our knowledge. Since conditions of use are beyond our control, the information provided can only serve as a guideline. Users must satisfy themselves that products are suitable for the intended uses. We reserve the right to change product design and properties without notice.

For any assistance required regarding the selection of gasket material please refer to us.

General Data	Thickness	Thickness Tolerances	Quantity Tolerances
Standard sheet size 1500 x 4500, 1500 x 2250, 1500 x 1500 mm	Non metallic range 0.30 to 5.0 mm Metallic range 0.80 to 5.0 mm	< 1.0 mm \pm 0.10 \geq 1.0 mm \pm 10 %	\pm 10 % kg Sheet Size \pm 5 % mm

PROPERTIES APPLICABLE FOR 2.0 mm thick material as per test method

1. Density	ASTM F 1315	gm/cm ³
2. Compressibility	ASTM F 36 J	%
3. Recovery	ASTM F 36 J	%
4. Tensile Strength (Across Grain)	ASTM F 152	N/mm ²
5. Creep Relaxation (0.80 mm)		%
6. Stress Relaxation	DIN 52913	
16 hours, 175 C	50 Mpa	Mpa
16 hours, 300 C	50 Mpa	Mpa
7. Gas Solubility (0.80 mm)	ASTM F 37 B	ml/hr
8. Cold/Hot Compression (0.80 mm)		
Thickness Decrease at 23 C		%
Thickness Decrease at 300 C		%
9. ATSM OIL NO 3 (5 hrs, 150 C)		
Thickness Increase		%
Weight Increase		%
10. FUEL B (5 hrs, 25 C)		
Thickness Increase		%
Weight Increase		%
11. WATER (5 hrs, 100 C)		
Thickness Increase		%
Weight Increase		%
12. Thickness Increase		
65 % H ₂ SO ₄ Acid (48 hrs, 23 C)		%
96 % H ₂ SO ₄ Acid (48 hrs, 23 C)		%
40 % HNO ₃ Acid (48 hrs, 23 C)		%
Max Operating Conditions		
Max Peak Temperature		°C
Max Operating Temperature		C
Max Operating Pressure		Bar
ASTM Line Call Out		

1. Suitable for the application, Best suited in case adhered to MACER assembly guidelines.
2. Only for short term temp. excursions.
3. This area implies not recommended unless evaluated.

MACER 111 AF

- Organic Fibre
- Nitrile Binder
- Mineral Fibre

Application

- Suitable for oils, fuels, lubricants, alcohols, gases, hydrocarbons, steam, water, cooling liquids, most diluted acids & alkalis for high stress conditions.



1.60 - 1.90

7-17

≥40

≥7

≥40

≥15

≥1

≥15

≥20

≥20

≥20

≥10

≥15

200

150

50

ASTM F 104 F 712232E34A9B6M4

MACER 222 AF

- Organic Fibre, Mineral Fibre
- Nitrile Binder
- Aramid Fibre

Application

- Suitable for oils, fuels, lubricants, alcohols, gases, hydrocarbons, steam, water, cooling liquids, most diluted acids & alkalis for low stress conditions.



1.60 - 1.90

7-17

≥40

≥9

≥35

≥20

≤1

≥15

≥15

≥15

≥15

≥10

≥15

300

220

80

ASTM F 104 F 712122E23A9B9M9

MACER 333 AF

- Glass Fibre
- Nitrile Binder
- Aramid Fibre

Application

- Suitable for oils, fuels, lubricants, alcohols, gases, hydrocarbons, steam, water, cooling liquids, most diluted acids & alkalis for high stress conditions.



BS 7531 Grade X

1.60 - 1.90

5-15

≥50

≥10.5

≥35

≤25

≤1

≤9

≤7

≤10

≤10

≤10

≤10

≤10

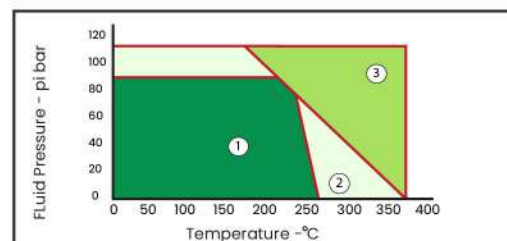
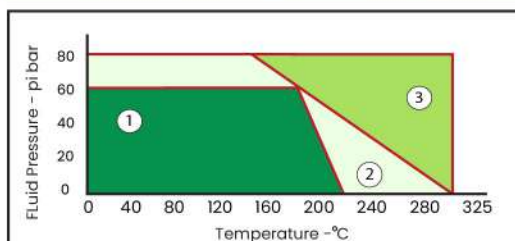
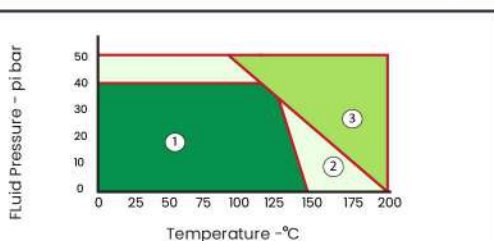
≤10

450

300

120

ASTM F 104 F 712911E12A9B3M5



MACER OIL AF

- Aramid Fibre
- Nitrile Binder
- Mineral Fibre

Application

- Suitable for oils, fuels, lubricants, alcohols, gases, hydrocarbons, steam, water, cooling liquids, most diluted acids & alkalis for medium stress conditions.



BS 7531 Grade Y

1.60 - 1.90

7-17

≥40

≥10.5

≤30

≥22

≤1

≤10

≤10

≤10

≤10

≤10

≤10

350

250

100

ASTM F 104 F 712911E12A9B5M5

MACER ACID AF

- Organic Fibre
- CSM Binder
- Aramid Fibre

Application

- Premium quality acid jointing material, A chemical grade material suitable for most acids, alkalis fuels & refrigerants for aggressive environments.



1.60 - 1.90

7-17

≥40

≥10.5

≤1

≤15

≤15

≤15

250

200

60

ASTM F 104 F 712000A9M5

MACER UNIVERSAL AF

- Carbon Fibre
- Nitrile Binder
- Aramid Fibre

Application

- Suitable for oils, fuels, lubricants, alcohols, gases, hydrocarbons, steam, water, cooling liquids, most diluted acids & alkalis for medium stress conditions.



1.60 - 1.90

7-17

≥40

≥8

≥30

≤20

≤1

≤10

≤10

≤10

≤10

≤10

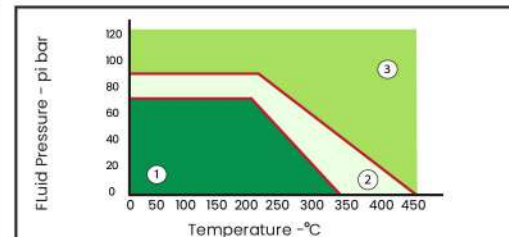
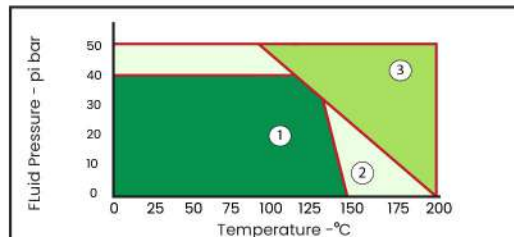
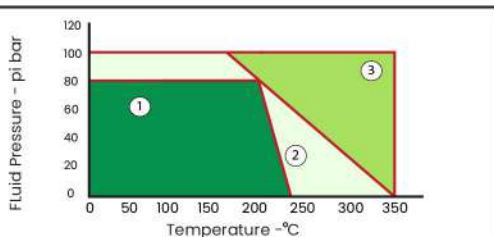
≤10

440

350

100

ASTM F 104 F 712911E12A9B4M9



MACER 111 METALLIC AF

- Inorganic Fibre, Mineral Fibre
- Nitrile Binder
- Wire Reinforced

Application

- General purpose Metallic grade suitable for low pressure steam, water, oils, fuels, & inert gases for low stress conditions.



1.70 - 2.0

7-17

≥40

≥8

≤40

≥17

≤1

≤15

≤20

≤20

≤20

≤10

≤15

250

200

80

ASTM F 104 F 712232E34A9B6M9

MACER OIL METALLIC AF

- Mineral Fibre, Aramid Fibre
- Nitrile Binder
- Wire Reinforced

Application

- Premium metallic grade suitable for oils, fuels, lubricants, alcohols, hydrocarbons, steam, water cooling liquids, most diluted acid & alkalies for medium stress conditions.



1.70 - 2.90

7-17

≥40

≥10.5

≤30

≥22

≤1

≤15

≤15

≤15

≤15

≤10

≤10

300

250

100

ASTM F 104 F 712121E23A9B5M5

MACER UNIVERSAL METALLIC AF

- Mineral Fibre, Aramid Fibre
- Nitrile Binder
- Wire Reinforced

Application

- Premium metallic grade suitable for oils, fuels, lubricants, alcohols, hydrocarbons, steam, water cooling liquids, most diluted acid & alkalies for medium stress conditions.



1.70 - 2.0

7-17

≥40

≥13.7

≥25

≤1

≤10

≤10

≤10

≤10

≤10

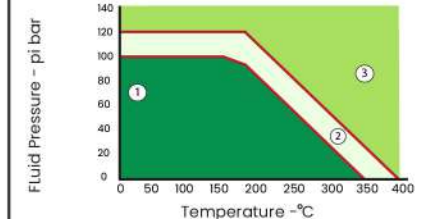
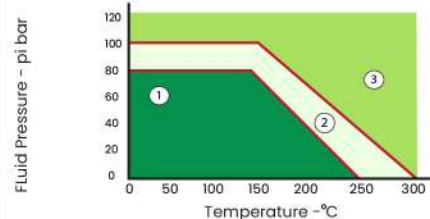
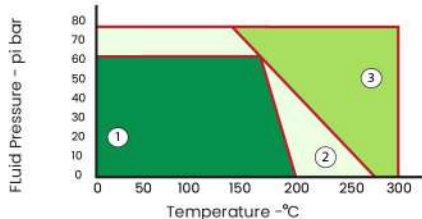
≤10

400

300

120

ASTM F 104 F 712911E12A9B4M6



given only as a guidance, since they depend not only on the type of gaskets material but also on the service medium, type of flange & surface finish. Steam application requires special consideration.

○ DENIED **○ RECOMMENDED** **○ DEPENDS ON OPERATING CONDITIONS** **✗ NOT RECOMMENDED**

MACER 222 AF	MACER OIL AF	MACER 333 AF	MACER ACID AF	MACER UNIVERSAL AF		MACER 111 AF	MACER 222 AF	MACER OIL AF	MACER 333 AF	MACER ACID AF	MACER UNIVERSAL AF
○	○	○	○	○	Oxalic Acid	○	○	○	○	○	○
✓	✓	✓	✓	✓	Oxygen	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Palmitic Acid	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Peniane	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Perchloroethylene	○	○	○	○	○	○
○	○	○	○	○	Phenol	✗	✗	✗	✗	○	✗
✓	✓	✓	✓	✓	Phosphoric Acid	✓	✓	✓	○	✓	✓
✓	✓	✓	✓	✓	Potassium Acetate	✓	✓	✓	✓	✓	✓
○	○	○	○	○	Potassium Bicarbonate	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Potassium Carbonate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Potassium Chloride	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Potassium Dichromate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Potassium Hydroxide	○	○	○	○	○	○
✓	✓	✓	✓	✓	Potassium Iodide	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Potassium Nitrate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Potassium Permanganate	✓	✓	✓	✓	✓	✓
○	○	○	○	○	Propane	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Pyridine	✗	✗	✗	✗	✗	✗
✓	✓	✓	✓	✓	Salicylic Acid	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Silicon Oil	✗	✗	✗	✗	✗	✗
✓	✓	✓	✓	✓	Skydrol	✗	✗	✗	✗	✗	✗
✓	✓	✓	○	○	Sodium Aluminate	✓	✓	✓	✓	✓	✓
✓	✓	✓	○	○	Sodium Bicarbonate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Sodium Bisulphite	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Sodium Carbonate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Sodium Chloride	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Sodium Cyanide	✓	✓	✓	✓	✓	✓
✓	✓	✓	○	○	Sodium Hydroxide	○	○	○	○	○	○
✓	✓	✓	✓	✓	Sodium Sulphate	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Sodium Sulphide	✓	✓	✓	✓	✓	✓
✗	✓	✓	✓	✓	Starch	✗	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	Steam	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Stearic Acid	✗	✓	✓	✓	✓	✓
○	○	○	○	○	Sugar	✗	✓	✓	✓	✓	✓
✗	✓	✓	✓	✓	Sulphuric Acid 20%	✗	✗	✗	○	✓	✗
✓	✓	✓	✓	✓	Sulphuric Acid 96%	✗	✗	✗	✗	✓	✗
✓	✓	✓	○	○	Tar	✓	✓	✓	✓	✓	✓
✗	○	○	○	○	Tartaric Acid	✓	✓	✓	✓	✓	✓
✗	○	○	✓	✓	Toluene	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Transformer Oil	✓	✓	✓	✓	✓	✓
✗	✗	✗	✗	✗	Trichlorethylene	✓	○	✓	○	○	✓
✓	✓	✓	✓	✓	Water	○	✓	✓	✓	○	○
✓	✓	✓	✓	○	White Spirit	○	✓	✓	✓	○	○
○	○	○	○	○	Xylene	○	○	○	○	○	○



Please contact us for any further details!

MACER INDUSTRIES

 sales@macerindia.com

 macerindia.com

 033-22624511, +919732574628

