

PR 780/50 High Temperature Moulding Grade High Consistency Silicone Rubber (HCR)

Characteristics

Vulcanised articles manufactured from PR780/50 high temperature moulding grade silicone rubber exhibit a unique combination of characteristics and properties. They are noted for their good flexibility, mechanical properties, and increased high temperature resistance as well as good processing characteristics. PR780/50 can be pigmented.

Product Data

Material Reference:	PR 780 / 50 (HCR Moulding Grade)
Special Features:	<ul style="list-style-type: none"> • Temperature range from -55 °C to 300 °C (short excursions to 320 °C) • Good blend of physical properties • Excellent high temperature resistance
Colour:	Off-white (Optimum heat stability achieved when pigmented RIO or black)

Safety Information

Detailed, safety specific information can be obtained from the Material Safety Data Sheets (MSDS), which are available upon request.

Physical Properties

Test	Standard	Units	Typical Values
Hardness	ISO 7619-1	Shore A	50
Density	ISO 2781	g/cm ³	1.15
Tensile Strength	ISO 37	MPa	12
Elongation @ Break	ISO 37	%	637
Tear Strength	ISO 34	kN/m	29
Compression Set: (22 Hrs @ 175 °C)	ISO 815-1	%	17

Heat Stability

Test – After Heat Ageing: (168 Hrs @ 250 °C)	Standard	Units	Typical Values
Hardness	ISO 7619-1	Shore °A	53
Tensile Strength	ISO 37	MPa	8.5
Elongation @ Break	ISO 37	%	485

Test – After Heat Ageing: (168 Hrs @ 275 °C)	Standard	Units	Typical Values
Hardness	ISO 7619-1	Shore °A	58
Tensile Strength	ISO 37	MPa	6.9
Elongation @ Break	ISO 37	%	350

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Test – After Heat Ageing: (168 Hrs @ 300 °C)	Standard	Units	Typical Values
Hardness	ISO 7619-1	Shore °A	69
Tensile Strength	ISO 37	MPa	5.8
Elongation @ Break	ISO 37	%	205

Typical Cure Conditions

Press-Cure	10 minutes @ 165 °C
Post-Cure	4 hours @ 200 °C (in ventilated air)
Catalyst Type	Dicumyl Peroxide (98%) or, 45 % paste of 2,5-bis-(t-butylperoxy)-2,5-dimethyl-hexane in silicone rubber

This data is obtained from test pieces moulded in the laboratory and are intended as a guide. They should not be used in preparing specifications.

Quality Assurance

All Primasil Silicone Rubber products are manufactured in accordance to the Quality Management Systems of ISO 9001 and if required; ISO 13485 and TS 16949. Full documentation and full traceability are ensured.

Production Conditions

At Primasil Silicones, controls are implemented to ensure critical parameters are monitored throughout the entire production process to achieve customer requirements.

Sterilizing Conditions

It is the user's responsibility to validate a sterilisation process for silicone products. The user should conduct testing if sterilisation conditions vary and/or if minor property changes affect performance. Common methods include:

1. Autoclave (Steam-sterilisation).

Silicone mouldings can be effectively sterilised by steam in an autoclave. However, silicone materials are more difficult to heat than other materials, such as thermoplastics, because they have thermal insulating properties and so care must be taken to ensure properties are not altered.

2. Gamma Radiation Sterilisation.

Gamma radiation studies of the effects on the physical properties of the silicone elastomer have shown that doses of radiation up to 2.5 Mrad (25kGy) do not adversely affect hardness, elongation, modulus, tensile or tear strength. Repeated gamma sterilisation or processing at higher doses and for longer periods however, may affect some of the physical properties of the elastomer. Testing should therefore be conducted by the user if sterilisation conditions vary and if minor property changes could affect performance.

3. Ethylene Oxide Sterilisation (ETO).

ETO has been used to sterilise silicone products with no degradation of physical properties. Sterilisation by this method is only recommended if procedures allow sufficient time for complete out-gassing of residual ETO and ETO by-products.

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