

SILBIONE® HCRA 4500 SERIES

Medical Grade High Consistency Rubber

Technical Data Sheet n° – October
2017

Description

SILBIONE® HIGH CONSISTENCY RUBBERS (HCRs) are two-component platinum-catalyzed silicone elastomers designed for extruding or injection molding medical parts, including short-term implant (<29 days) applications.

Available in a full range of hardnesses from 20 to 80 durometer – Shore A, Elkem Silicones' **SILBIONE® HCRs** offer the distinctive advantages of easy processing and easy release combined with high performance physical properties.

Advantages

- Easy to mill and extrude
- Rapid cure at elevated temperatures.
- Good clarity
- Can be post-cured, but post-cure is not necessary to achieve desired physical properties.

Processing

SILBIONE® HCRs are supplied as kit-matched products. Parts A and B components are designed to be mixed with standard mill, extruder, or injection molding processing equipment and techniques.

Cure:

Cure is initiated once the two-part part A and part B components are mixed and can be accelerated by heating the mixed elastomer. Cure is dependent upon temperature and part or profile size.

Special care must be taken to assure clean mixers, mills, dies, molds and a clean work area with no organic rubbers used on the same processing equipment.

Caution: Traces of foreign materials can poison the catalyst and inhibit the cure. All metering and mixing equipment should be thoroughly cleaned. Polymer systems, which contain traces of amines, sulfur, nitrogen oxide, organotin compounds and carbon monoxide can interfere with the cure of this product and should be avoided.

Note: Kit matching, accurate measuring and complete mixing are essential factors in obtaining consistent results.

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TYPICAL PROPERTIES

AS SUPPLIED

<i>Typical properties</i>	ASTM	HCRA 4520	HCRA 4530	HCRA 4540	HCRA 4550	HCRA 4560	HCRA 4565	HCRA 4570	HCRA 4580
Appearance	TP 038	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear
Mix Ratio	-	1:1	1:1	1:1	1:1	1:1	1:1	1:1	1:1
Specific Gravity	TP 013	1.11	1.12	1.13	1.14	1.15	1.17	1.18	1.2

PRESS CURE, 15 minutes, 177°C (350°F), Cold Mold

<i>Typical properties</i>	ASTM	HCRA 4520	HCRA 4530	HCRA 4540	HCRA 4550	HCRA 4560	HCRA 4565	HCRA 4570	HCRA 4580
Hardness, Shore A	D2240	20	30	40	50	60	65	70	80
Tensile strength, Psi	D412	1250	1700	1650	1650	1550	1500	1450	1250
Elongation, %	D412	1000	1000	975	950	775	725	700	650
Tear strength, Ppi	D624 Die B	225	250	250	300	265	250	235	225
Work Life, hr	D412	2	3	4	4	4	4	4	4

CURE KINETICS, MDR, 5 minutes, 115°C (240°F)

<i>Typical properties</i>	ASTM	HCRA 4520	HCRA 4530	HCRA 4540	HCRA 4550	HCRA 4560	HCRA 4565	HCRA 4570	HCRA 4580
t2, minutes	D5289	0.2	0.15	0.2	0.2	0.15	0.15	0.15	0.15
t90, minutes	D5289	0.5	0.5	0.5	0.5	0.3	0.3	0.3	0.3
Prate, llb/min	D5289	30	40	45	55	65	80	85	120

Please note: The typical properties listed in this bulletin are not intended for use in preparing specifications for any particular application of SILBIONE silicone materials.

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Regulation

Bio-compatibility Testing

Designed specifically for healthcare applications, SILBIONE® LSRs meet or exceed testing requirements of United States Pharmacopoeia (USP) Class VI. Biocompatibility testing addresses the categories of evaluation for cytotoxicity, skin sensitization and skin irritation specified in ISO 10993. These products are not suitable for use in devices requiring human implantation for greater than 30 days.

Packaging

SILBIONE® HCRs are available in:

- 20 KG and 500 KG kits, each containing equal portions of Part A and Part B.

Storage and shelf life

When stored in their original packaging at a temperature of between 5°C (40°F) and 32°C (90°F), **SILBIONE® HCRs** may be stored for up to 1 year from their date of manufacture. Comply with the storage instructions and expiry date marked on the packaging.

Beyond this date, Elkem Silicones no longer guarantees that the products meet the sales specifications.

Safety

Please consult the Safety Data Sheets of **SILBIONE HCRs**.

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