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PL-12889817

# SILRES<sup>®</sup> H 62

Silicone Impregnation Resin

## Characteristics

SILRES<sup>®</sup> H 62 is a solvent-free, liquid silicone resin which is cured by heat.

## Special characteristics

SILRES<sup>®</sup> H 62

- is a methylphenylvinylhydrogen polysiloxane not modified with organic components;
- is of very low volatility (suitable for vacuum pressure impregnation);
- is cured by heat through catalysed addition-crosslinking without the formation of cleavage-products; it also cures in thick layers, even in contact with air, tack-free and without the formation of bubbles;
- is remarkably insensitive during curing to the influence of various kinds of insulating materials;
- can be processed at temperatures up to a maximum of 70 °C to reduce viscosity;
- contains no decomposable and physiologically problematic components.

## Application

SILRES<sup>®</sup> H 62 is used for vacuum pressure impregnation of traction motors and of windings in electrical equipment with H- and C- class insulation.

The blend composition of SILRES<sup>®</sup> H 62 A with SILRES<sup>®</sup> H 62 B in the weight ratio of 10 : 1 corresponds exactly to the one-component system SILRES<sup>®</sup> H 62 C.

### Product data (two part system SILRES<sup>®</sup> H 62 A + B, uncured)

Property	Test method	Unit	Value	
			A	B
Component			A	B
Mixing ratio			10 : 1	
Color			Clear	Yellowish
Viscosity at 23 °C	DIN 51562	[mm <sup>2</sup> /s]	1,400	1,300
Viscosity at 80 °C	DIN 51562	[mm <sup>2</sup> /s]	120	120
Density at 23 °C		[g/cm <sup>3</sup> ]	1.13	1.13
Volatile content 5g, 1h, 200°C		[%]	< 2	< 2

### Product data (mixed SILRES<sup>®</sup> H 62 A + B, SILRES<sup>®</sup> H 62 C, uncured)

Property	Test method	Unit	Value
Color			Yellowish
Viscosity at 23 °C	DIN 51562	[mm <sup>2</sup> /s]	1,400
Viscosity at 80 °C	DIN 51562	[mm <sup>2</sup> /s]	120
Density at 23 °C		[g/cm <sup>3</sup> ]	1.13
Shelf life 23°C, double initial viscosity		[months]	9
Shelf life 80°C, double initial viscosity		[days]	5
Volatile content 5g, 1h, 200°C		[%]	< 2

These figures are only intended as a guide and should not be used in preparing specifications.

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## Gel times for SILRES® H 62

Temperature	Gelling time
140 °C	300 min
160 °C	100 min
180 °C	45 min
200 °C	24 min
220 °C	15 min

## Storage

SILRES® H 62 has a shelf life of at least 9 months when stored between 5°C and 30°C in the tightly closed original container. The 'Best use before end' date of each batch appears on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

## Safety information

Detailed safety information is contained in each Material Safety Data Sheet, which can be obtained from our sales offices.

21 MAR 2014

The data presented in this leaflet are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately on receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The recommendations made in this leaflet should be checked by preliminary trials because of conditions during processing over which we have no control, especially where other companies' raw materials are also being used. The recommendations do not absolve the user from the obligation of investigating the possibility of infringement of third parties' rights and, if necessary, clarifying the position. Recommendations for use do not constitute a warranty, either express or implied, of the fitness or suitability of the products for a particular purpose.

The management system has been certified according to DIN EN ISO 9001 and DIN EN ISO 14001

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For technical, quality, or product safety questions, please contact:

Wacker Chemie AG  
WACKER-SILICONES  
Hanns-Seidel-Platz 4  
D-81737 Munich, Germany

www.wacker.com  
silicones@wacker.com

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## Processing

Standard VPI processing conditions are as follows

- The electrical component to be impregnated is dried at elevated temperature under vacuum (0.5 - 5 mbar) in the impregnation vessel.
- The impregnation vessel - still under vacuum - is filled with SILRES® H 62. The electrical part is submerged by the resin.
- To accelerate impregnation pressure is applied (2 - 5 bar) until impregnation is completed.
- The electrical part is lifted from the impregnation vessel and excessive resin drips off. Thickness of the surface coating should be <50 µm to exclude cracks due to differing thermal expansion of materials.
- Cure is done at 200 °C, 12 hours under rotation of the impregnated part (to reduce dripping losses).

Product data (SILRES® H 62 A + B, SILRES® H 62 C, cured for 16 h at 150°C)

Property	Test method	Unit	Value
Appearance			Transparent, clear
Density at 23°C		[g/m³]	1.13
Refractive index at 23°C			1.51
Hardness, Shore D	DIN 53505		65
Flexural strength at 23°C	DIN 53452	[N/mm²]	30
Tensile modulus E at 80°C	DIN 53457	[N/mm²]	950
Tensile strength at 23°C	DIN 53455	[N/mm²]	20
Coefficient of linear thermal expansion	30 - 70°C		$1.35 \times 10^{-4}$
	30 - 130°C		$1.75 \times 10^{-4}$
Thermal conductivity at 50°C	DIN 52612	[W/K m]	0.2
Specific heat 0 - 50°C		[cal/g K]	0.35 - 0.38
Vicat softening point	DIN 53460	[°C]	72
Vertical flammability test (analogous to UL 94)			V 0
Temperature index	IEC 216	[°C]	231
Dielectric constant 50 Hz - 10 MHz	DIN 53483		a) After production
			b) After 168 hours immersion in water at 80°C
			2.8 - 2.9
			2.8 - 2.9
Dielectric dissipation factor $\tan\delta$ 50 Hz - 10 MHz	DIN 53483		a) After production
			b) After 168 hours immersion in water at 80°C
			$30 - 70 \times 10^{-4}$
			$30 - 70 \times 10^{-4}$
Volume resistivity at 23°C	IEC 93	[Ohm cm]	$2 \times 10^{17}$
Dielectric strength at 23°C		[kV/mm]	27
Surface resistance at 23°C		[Ohm cm]	$3 \times 10^{13}$
Tracking resistance	IEC 587	[kV]	2.5

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