

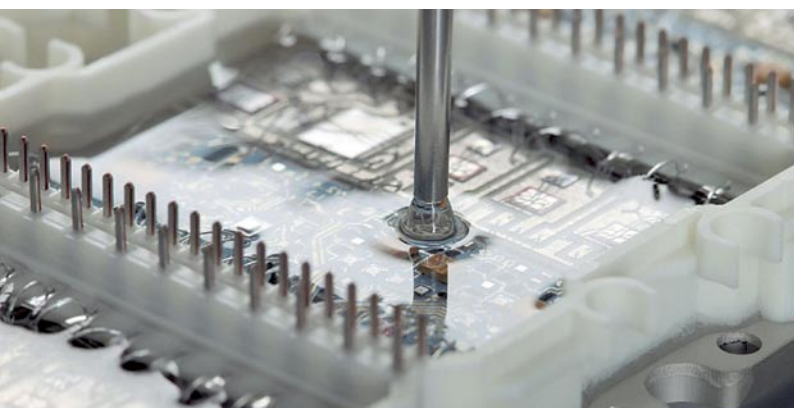


**WACKER**

**SILICONES**

SILICONE PRODUCTS  
FOR THE ELECTRONICS  
INDUSTRY

CREATING TOMORROW'S SOLUTIONS



BONDING, SEALING, COATING,  
ENCAPSULATION: PROCESSES IN  
THE ELECTRONICS INDUSTRY

# BOLTING, SOLDERING, RIVETING: WHY NOT JUST BOND?

**Bonding with WACKER adhesives has decisive advantages over conventional joining methods, such as bolting, soldering, welding and riveting: a more uniform distribution of stress, which efficiently compensates for vibrations and functions as a seal preventing corrosion.**

## **Sealing: By Bonding or Compression**

The automated production of sealants offers advantages such as reduced material input, simple groove construction and simplified inventory management.

With wet-type gaskets (FIPG), the parts are sealed by bonding; with dry-type sealants (CIPG), the parts are sealed by compression.

## **Coating: The Protection Layer**

Conformal coatings offer protection against external influences, such as dust, light, aggressive media, temperature fluctuations and mechanical stress.

Our solvent-free, UV-cure materials enable rapid curing and environment friendly processes.

## **Encapsulation: All From the Same Cast**

Encapsulation has proved ideal for partial or complete covering of chips, hybrid circuits and power semiconductor modules.

Particularly soft gels are used for encapsulating sensitive devices, such as wire-bonded ICs. These gels safeguard functionality even under temperature extremes or strong vibration.

# PRODUCT DATA AT A GLANCE

Products	Properties	Bonding	Sealing
<b>RTV-1 Silicones</b>			
ELASTOSIL® N9132 S	<ul style="list-style-type: none"> <li>– General purpose adhesive and sealant</li> <li>– Neutral cure silicone with UL 94V-0 listing</li> </ul>	●	●
ELASTOSIL® N2010	<ul style="list-style-type: none"> <li>– Neutral cure adhesive, sealant and encapsulant</li> <li>– Solvent-free coating material</li> </ul>	●	●
ELASTOSIL® N2034	<ul style="list-style-type: none"> <li>– Neutral cure adhesive and sealant</li> <li>– Flowable, thixotropic silicone</li> </ul>	●	●
SEMICOSIL® 964 UV	<ul style="list-style-type: none"> <li>– Rapid UV cure coating material</li> <li>– Solvent free, sprayable silicone with UL 94V-0 listing</li> </ul>		
<b>RTV-2 Silicones, Condensation cure</b>			
ELASTOSIL® RT K / Catalyst T77	<ul style="list-style-type: none"> <li>– Flowable adhesive and encapsulant</li> <li>– Curing time and pot-life can be adjusted by mixing ratio</li> </ul>	●	
<b>RTV-2 Silicones, Addition cure</b>			
ELASTOSIL® RT 601 A/B	<ul style="list-style-type: none"> <li>– Low viscosity encapsulant</li> <li>– High transparent, colorless vulcanizate</li> </ul>		
ELASTOSIL® RT 675 A/B	<ul style="list-style-type: none"> <li>– High thermally conductive encapsulant</li> <li>– Excellent heat stability</li> </ul>		
ELASTOSIL® RT 745 A/B	<ul style="list-style-type: none"> <li>– Low viscosity sealant, encapsulant and coating material</li> <li>– Self bonding, high temperature curing silicone</li> </ul>	●	
WACKER SiGel® 612 A/B	<ul style="list-style-type: none"> <li>– Low bleeding encapsulant</li> <li>– Highly transparent silicone gel with UL 94HB listing</li> </ul>		
<b>One-part Silicones, High temperature cure</b>			
ELASTOSIL® RT 713	<ul style="list-style-type: none"> <li>– Compressible sealant</li> <li>– Low density, rapid heat curing silicone</li> </ul>		●
SEMICOSIL® 989 1K	<ul style="list-style-type: none"> <li>– Thixotropic adhesive and sealant</li> <li>– Medium hardness</li> </ul>	●	●
<b>Pastes</b>			
WACKER® Paste P12	<ul style="list-style-type: none"> <li>– Pure, soft heat sink paste with marked thermal conductivity</li> <li>– Heat transfer from housing to cooling element practically doubled</li> </ul>		

Encap- sulating	Coating	Color	Density [g/cm <sup>3</sup> ]	Viscosity [mPas]	Mixing ratio p.b.w	Curing time
		White, Grey	1.28	non-sag	–	15 min (skin-over time)
●	●	Transparent	1.01	10,000 (D=0.5 1/s) 20,000 (D=25 1/s)	–	20 min (skin-over time)
		Black	1.14	15,000 (D=0.5 1/s) 25,000 (D=25 1/s)	–	20 min (skin-over time)
	●	Transparent	0.99	800	–	5 min curing (UV exposure at 5 W/cm <sup>2</sup> for 4 sec.)
●		Black	1.22	30,000	8:1– 12:1	2h / 8:1 5h / 12:1
●		Transparent	1.02	3,500	9:1	24h / 23 °C 10min / 100°C
●		Red	2.3	35,000	1:1	24h / 23 °C 30min / 100 °C
●	●	Brownish	0.97	1,000	1:1	60min / 80 °C 5min / 150 °C
●		Transparent	0.97	1,000	1:1	8h / 23 °C 15min / 100°C
		Grey	0.75	800,000 (D=0.5 1/s) 80,000 (D=25 1/s)	–	30min / 130 °C 10min / 150 °C
		Transparent	1.1	300,000 (D=0.5 1/s) 30,000 (D=25 1/s)	–	60min / 130 °C 10min / 150 °C
		White	2.1	non-sag	–	–

Hardness-Shore A	Tensile Strength; ISO 37 [N/mm <sup>2</sup> ]	Primerless Adhesion	Elongation at Break; ISO 37 [%]	Thermal conductivity [W/mK]	Compressible
33	2.4	●	600	0.2	
25	1.0	●	200	0.2	
36	2.0	●	250	0.2	
27	0.7	●	100	0.2	
40	2.0	●	150	0.2	
45	7.0		100	0.2	
80	2.0		50	1.2	
15	0.3	●	180	0.2	
-	-	Tacky	-	0.2	
23	1.5	●	350	0.2	●
55	6.0	●	200	0.2	
-	-		-	0.8	

# SELECTING THE BEST CURING SYSTEM FOR YOUR PROCESS



**ELASTOSIL® and SEMICOSIL® provide outstanding performance. We have the ideal solution for your particular production process.**

## **RTV-2 Silicones: Rapid Curing**

- Two-part systems that cure at room temperature; self-bonding ELASTOSIL® RT 745 cures exclusively at a high temperature
- Dual-component metering equipment is recommended for processing
- Rapid curing within minutes is achieved by working at elevated temperatures (addition-cure RTV-2)
- Rapid cure is achieved within hours by selecting the right mixing ratio (condensation-cure RTV-2)

## **RTV-1 Silicones: Easy Processing**

- One-part systems that cure at room temperature
- Simple metering equipment suffices for processing; these rubber grades can even be applied manually
- Atmospheric moisture is needed for curing; UV-acceleration possible with product SEMICOSIL® 964 UV

## **One-Part Silicones: Easy Processing + Rapid Curing**

- One-part systems that cure exclusively at high temperature
- Simple metering equipment suffices for processing
- Rapid curing within minutes

All the figures in this leaflet are only intended as a guide and should not be used in preparing specifications. For more detailed product data, please see our product data sheet.

The data presented in this brochure are in accordance with the present state of our knowledge, but do not absolve the user from carefully checking all supplies immediately upon receipt. We reserve the right to alter product constants within the scope of technical progress or new developments. The information given in this brochure 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 information provided by us does 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 product for a particular purpose.

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