

# WACKER® SILICONE PASTE P 12

## THERMALLY CONDUCTIVE SILICONE PASTE

### Product description

Pure white, soft consistency, heat sink paste with marked thermal conductivity. Electrically insulating.

### Application

WACKER® SILICONE PASTE P 12 is used especially in semiconductor technology as a heat sink paste. Wherever it is important to have good heat transfer from a semiconductor to a cooling element, it is advisable to apply a thin coating of WACKER® SILICONE PASTE P 12. In the assembly of semiconductors, e. g. diodes, transistors and thyristors, microscopic elevations exist on the mating surfaces of the semiconductor and the cooling surface if they have not been grounded and polished. When these surfaces are placed together, a firm metal-to-metal contact will result only where there are these elevations. 40 - 60 % of the surface is thus not in direct contact, depending on the roughness. This means that the hollow spaces in between these elevations are filled with air, which has relatively poor thermal conductivity.

By coating the contact surfaces with WACKER® SILICONE PASTE P 12, the thermally insulating air is replaced by the heat sink silicone paste when the semiconductor is screwed on. The thermal conductivity of WACKER® SILICONE PASTE P 12 is about 20 times better than that of air. Practical experience has shown that by using WACKER® SILICONE PASTE P 12, the heat transfer resistance from the semiconductor housing to the cooling elements is reduced by 50 %.

WACKER® SILICONE PASTE P 12 can be applied with a brush, spatula or by screen printing. Best results are achieved when a uniform, thin coat is applied to the mating surfaces. Paste squeezed out when the semiconductor is tightened should be removed.

For detailed information, refer to brochures on [www.wacker.com](http://www.wacker.com).

### Storage

Further information for storage:

Store in a dry and cool place.

The 'Best use before end' date of each batch is shown 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 notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed via WACKER web site <http://www.wacker.com>.

Product data		
Typical general characteristics	Inspection Method	Value
Appearance		white
Density at 25 °C, at 1013 hPa	ISO 1183-1 A	2,1 g/cm <sup>3</sup>
Consistency a) unworked penetration	DIN ISO 2137	270 - 300 1/10 mm
Consistency b) worked penetration (60 strokes)	DIN ISO 2137	300 1/10 mm
Solidifying point		approx. - 45 °C
Operating temperature range		- 40 to + 200 °C
Loss of weight / Volatility	FED-STD 791 M 321; 30h / 200 °C	max. 1,2 %
Bleeding	FED-STD 791 M 321; 30h / 200 °C	max. 0,4 %
Thermal conductivity		0,81 W/(m K)
Dielectric strength	DIN 53481	10 kV/mm
Permittivity (50 Hz)	IEC 60250	3,5 ε <sub>r</sub>
Dissipation factor (50 Hz)	IEC 60250	0,009
Insoluble in		water, methanol, ethanol glycerol, glycol
Soluble or dispersible in (except filler)		methylene chloride, benzine, white spirit, petroleum ether, toluene, kerosene, ethyl acetate etc.

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

The data presented in this medium 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 medium 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.

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

WACKER® is a trademark of Wacker Chemie AG.

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

Wacker Chemie AG  
Hanns-Seidel-Platz 4  
81737 München, Germany  
info.silicones@wacker.com

www.wacker.com