

SONDERHOFF FERMADUR

Two-component, room temperature cross-linking polyurethane potting compounds



The tailor-made chemistry for your electronic components.

SONDERHOFF FERMADUR is the two-component polyurethane system for the manufacture of hard- to gel-like potting compounds, which are placed and cured directly onto or into the component using FIP (Formed-In-Place) technology.

The systems consist of a resin basis (A-component) and a hardener (B-component), which are mixed with each other in a predetermined mixing ratio. After suitable processing a bubble-free potting compound is formed in a few minutes.

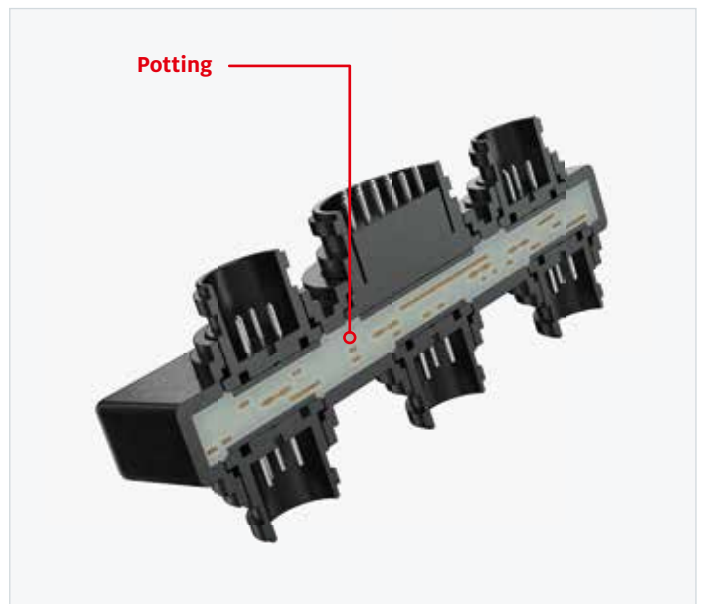
The function of the potting compound is determined by the application. It can range from surface coating to protect against environmental effects, to encapsulating electronic components or bonding components. The flowability, reactivity, degree of hardness and color of the material formulations can be adjusted as required.

Henkel can draw on the variety of more than 500 application-specific formulations of the SONDERHOFF FERMADUR product family.

Electronics Heating unit



Automotive Connector plug

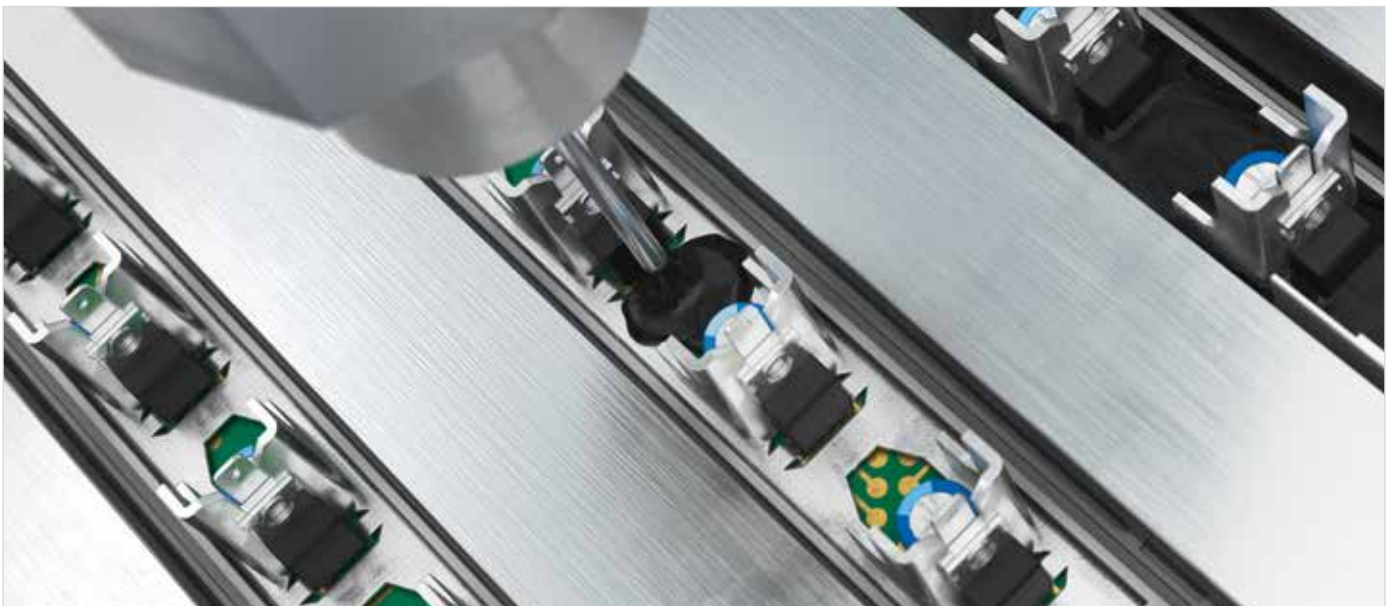


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10 good reasons for SONDERHOFF FERMADUR:

1. ... is most suitable for sealing industrial components.
2. ... after curing, it develops a cross-linked structure which is extremely resistant to environmental effects, such as humidity, dust, mechanical impacts and temperature.
3. ... reacts at room temperature in ≥ 5 minutes. A furnace can significantly shorten the reaction time, but it is not always necessary.
4. ... achieves particularly good adhesion to the parts' surface due to the chemical reaction of the two components on the carrier material.
5. ... has an excellent long-term behavior and is characterized by a high heat deflection temperature and an extremely low coefficient of expansion.
6. ... the viscosity can be formulated from a thin fluid to a thick paste.
7. ... is also available in transparent and light-fast formulations.
8. ... has low shrinkage and low surface tension, good dielectric properties and also very high impact strength.
9. ... is processed using a mixing and dosing machine for two components and can be adapted flexibly and quickly to other parts for potting application at any time
10. ... even the processing of small product series becomes profitable with it.



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PROCESSING INFORMATION

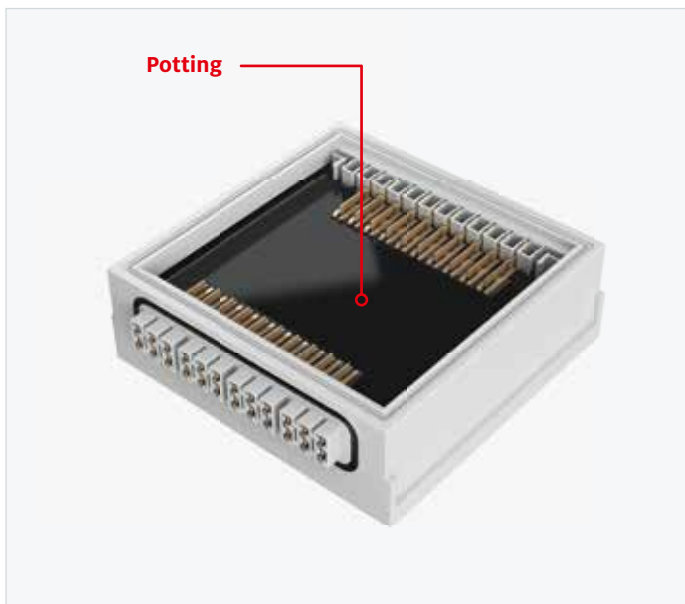
- > SONDERHOFF FERMADUR systems are processed using mixing and dosing machines for two components. The recommended processing temperature is $23\text{ °C} \pm 5\text{ °C}$ at a relative humidity between 40 and 70 %.

PHYSICAL AND CHEMICAL PROPERTIES

Properties	SONDERHOFF FERMADUR
Appearance	Black or grey, other colors upon request (including transparent)
Viscosity	300 to 200,000 mPas
Hardness	Covering the entire Shore A range up to 80 Shore D, also gel-like
Density	From 0.8 to 1.7 g/cm ³
Tensile strength	Up to 12 MPa
Elongation at break	Up to 400 %
Temperature resistance	From -40 to +130 °C (temporary up to +160 °C)
Water absorption	≤ 3 %
Pot life	Adjustable from 60 sec. to 90 min.
Flame retardancy	Up to UL 94 V-0 possible, even with 1.5 mm coating thickness
Optional features	E.g., light-fast, good thermal conductivity, can be used for rotation molding, dissipates static, hydrophobic, protection class up to IP 68 or NEMA 12, with multilevel flow behavior, abrasion resistant, greater adhesion

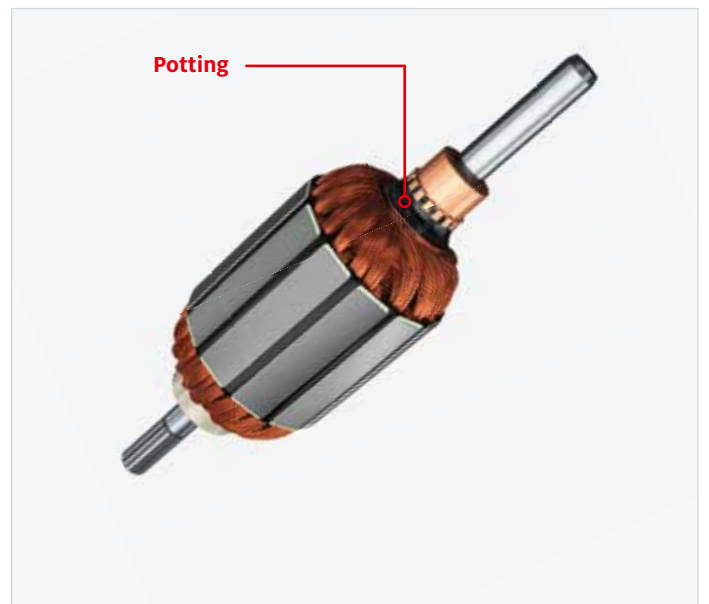
Electronics

Relay



Electronics

Motor inductor



SONDERHOFF FERMADUR

Two-component polyurethane potting compounds

THE SONDERHOFF FERMADUR RANGE (SELECTION)

SONDERHOFF FERMADUR A-component	Application	Viscosity mPas	Hardness Shore 00	Density g/cm ³	Special features
A-113-5-VP1	Potting compound for instrument and connector plugs	1,000	A 50	1.15	Flexible, levels very well, low shrinkage, low surface tension
A-112-VP2	Filter gel	200	A 30	1.00	Soft, gel-like, permanently sticky
A-134-10-VP6	Potting compound for sensors, circuit boards, electric switches and sensor elements	1,800	A 65	1.35	Flexible standard systems for electronics in the automotive industry, listed in various OEMs, good adherence
A-134-15-VP2	Potting compound for sensors, circuit boards, electric switches and sensor elements	8,000	A 40	1.40	High temperature resistant, aliphatic potting compound, UV stable
A-125-6	Potting compound for plugs	1,200	A 70	1.10	Flexible potting compound, low shrinkage, low surface tension
A-203-3-VP	Potting compound for transistors	1,200	A 70	1.20	Flexible, for sensitive electronic applications, low shrinkage, low surface tension
A-690 UL1	Potting compound for transducers	6,000	D 80	1.60	UL 94 V-0 listing at 1.5 mm, hard, good thermal conductivity
A-66D05-3	Binder natural stone	3,100	D 45	1.10	Aliphatic, UV and weather resistant, tough elastic
A-117-37	Potting compound for transformers, voltage transformers, capacitors, control units	23,000	D 75	1.70	Hard, thermal conductivity 0.9 W/mK, conforms to UL 94 V-0 at 3 mm
A-111-1-VP	Potting compound for sensors and circuit boards	300	gel-like – A 60	1.25	Transparent, soft to gel-like, for sensitive electronic applications
A-180-1-VP1	Potting compound for light diodes	1,000	A 70	1.10	Transparent, UV stable, tough-hard, temperature stable up to +165 °C, high chemical resistance
A-173-3-VP1	Potting compound for cable sheathing or molded parts for cable routing	approx. 1,000	A 50	0.80	Slightly foaming, flexible, high longitudinal water tightness achievable
A-120-1-VP1	Adhesive for panes in enclosures	200,000	D 30	1.30	Tough-hard, good adherence on various substrates, high mechanical stability, can be used as a glue, highly thixotropic
A-80DC8-1-CON	Rotation molding compound for ferrules	250,000	D 80	1.40	Non-drip, high stability and chemical resistances, static dissipative potting compound
A-25D45-01-R	Rotation molding compound	50,000	D 50	0.40	Hard, foamed potting, thixotropic
A-640-VP6	Coating for conveyor belts	23,000	A 75	1.15	Flexible, particularly tear resistant
A-196-4-F	Potting compound for filter end caps and adhesive for filter cartridges	1,000	D 40	1.15	Tough-hard, good adherence to various substrates, two-step flow behavior available

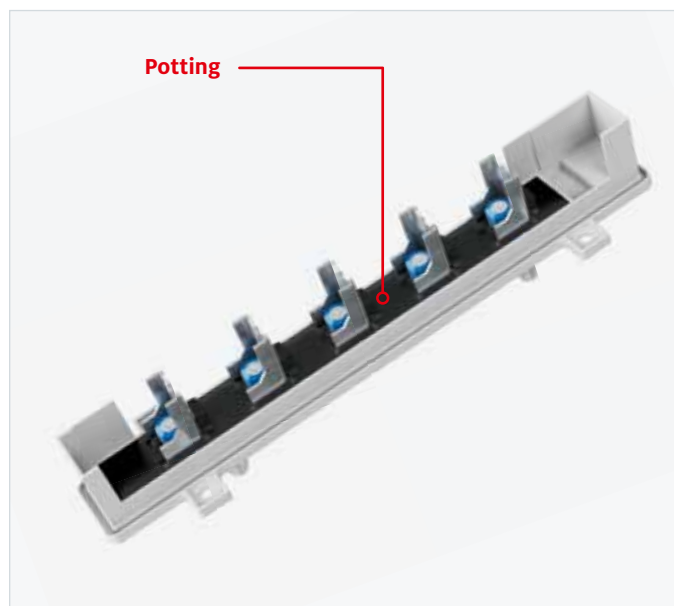
Electronics

Transformer



Automotive

Temperature control



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