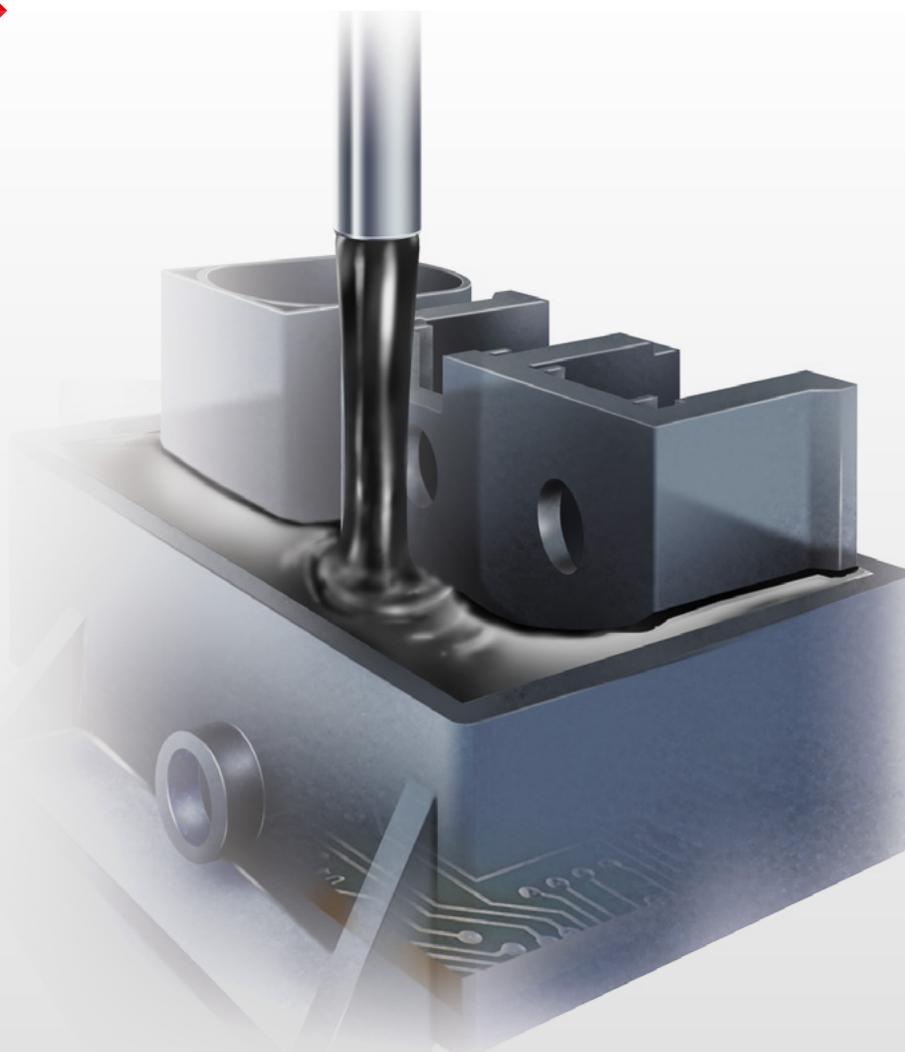


SONDERHOFF FERMADUR

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



SONDERHOFF FERMADUR

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

The tailor-made chemistry
for your electronic components.

10 good reasons for SONDERHOFF FERMADUR:

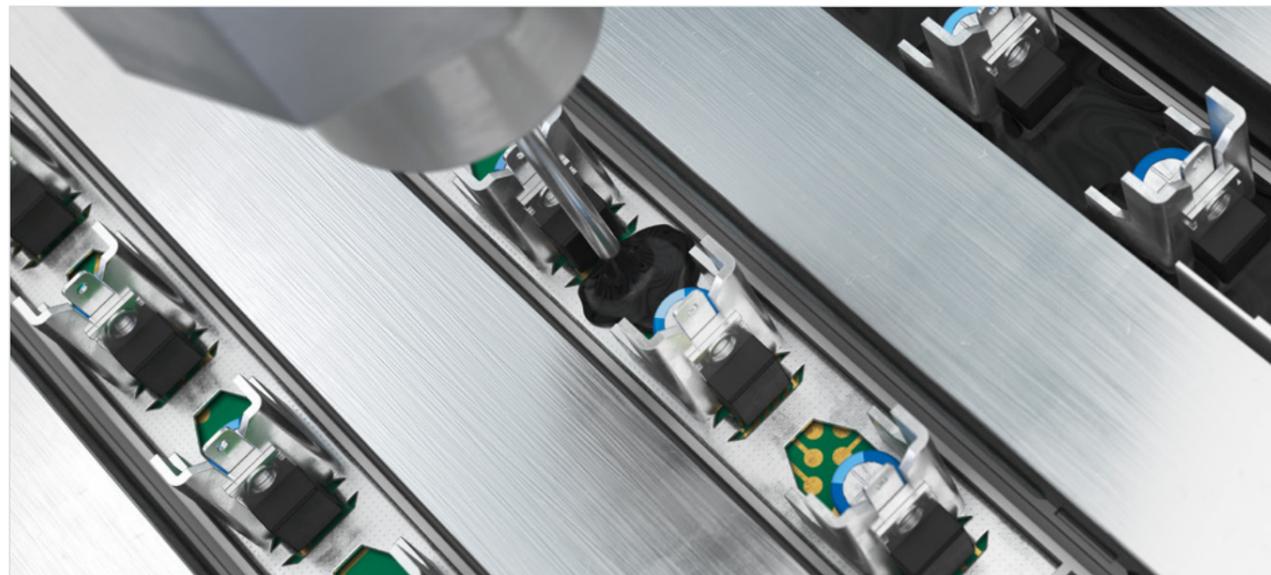
1. ... is most suitable for sealing industrial components.
2. ... after curing, it develops a cross-linked structure which is extremely resistant to environmental effects, such as humidity, dust, mechanical impacts and temperature.
3. ... reacts at room temperature in ≥ 5 minutes. A furnace can significantly 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. ... offers an exceptional long-term behavior and is distinguished by high heat resistance and an extremely low expansion coefficient.
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.

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.

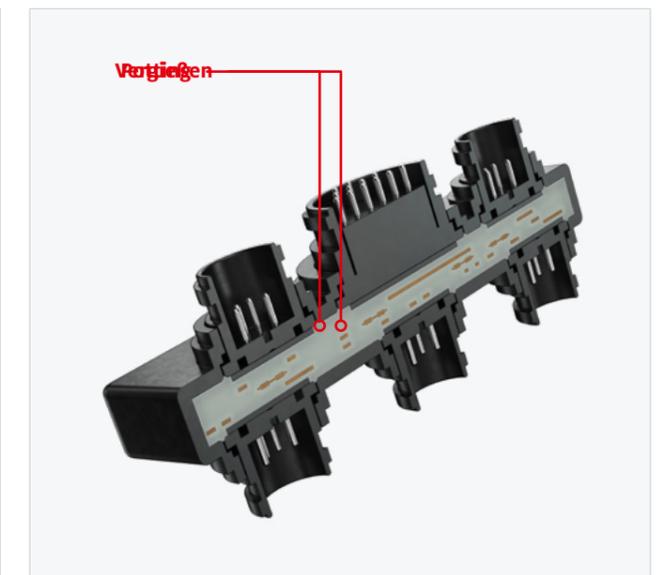
Henkel can draw on the variety of more than 500 application-specific formulations of the SONDERHOFF FERMADUR product family.



Electronics
Heating unit



Automotive
Connector plug



SONDERHOFF FERMADUR

Two-component polyurethane potting compounds

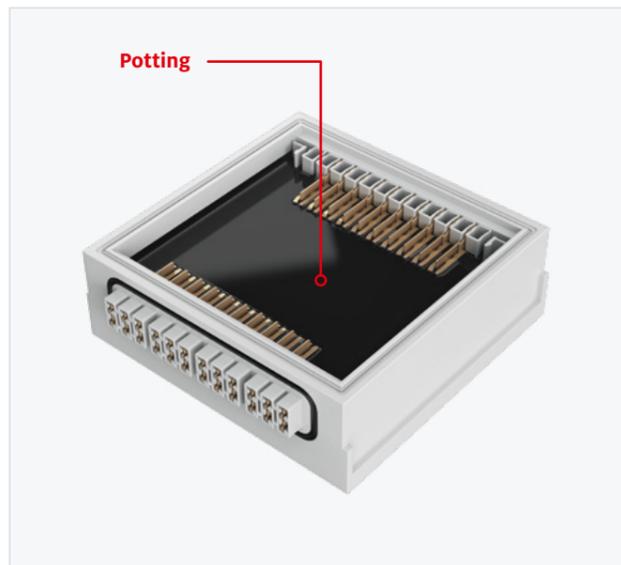
PROCESSING INFORMATION

› 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 %.

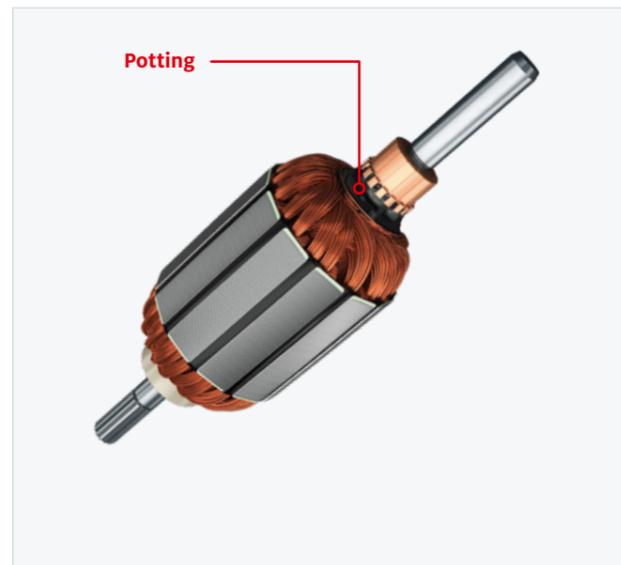
PHYSICAL AND CHEMICAL PROPERTIES

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

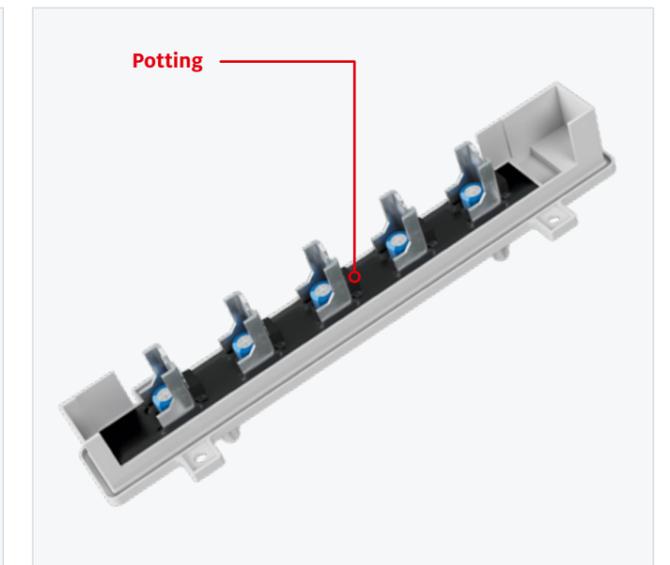
THE SONDERHOFF FERMADUR RANGE (SELECTION)

SONDERHOFF FERMADUR A-component	Application	Viscosity mPas	Hardness Shore	Density g/cm ³	Special features
A-113-5-VP1	Potting compound for instrument and connector plugs	2,050	A 70	1.07	Flexible, levels very well, low shrinkage, low surface tension
A-112-VP2	Filter gel	200	Shore 00 22	1.02	Very soft, gel-like, permanently sticky
A-134-10-VP6	Potting compound for sensors, circuit boards, electric switches and sensor elements	3,000	A 78	1.30	Flexible standard systems for electronics in the automotive industry, listed in various OEMs, good adherence, fast curing
A-134-15-VP2	Potting compound for sensors, circuit boards, electric switches and sensor elements	7,500	D 42	1.40	High temperature resistant, aliphatic potting compound, UV stable
A-125-6	Potting compound for plugs	1,300	A 70	1.12	Flexible potting compound, low shrinkage, low surface tension, tough-elastic, fast curing
A-690 UL1	Potting compound for transducers	5,000	D 84	1.55	Fast curing, tough-elastic, good dielectric properties, flame-retardant according to UL94-V0 at 1.5mm
A-83D10-1-FR	Potting compound for transformers, voltage transformers, capacitors, control units	11,000	D 85	1.50	Fast curing, tough-elastic, good dielectric and flame-retardant properties
A-180-1-VP1	Potting compound for light diodes	1,100	A 70	1.11	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	1,800	A 60	0.75	Slightly foaming, flexible, high longitudinal water tightness achievable, very good mechanical properties
A-66D05-3	Binder natural stone	3,300	D 45	1.12	Aliphatic, UV and weather resistant, tough elastic
A-120-1-VP1	Adhesive for panes in enclosures	213,000	D 30	1.25	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	191,000	D 78	1.25	Non-drip, high stability and chemical resistances, static dissipative coating
A-25D45-01-R	Rotation molding compound	50,000	D 45	0.40	Hard, foamed potting, thixotropic
A-196-4-F	Potting compound for filter end caps and adhesive for filter cartridges	1,000	D 64	1.16	Tough-hard, good adherence to various substrates, microbial inert

Electronics
Transformer



Automotive
Temperature control



Customer-specific solutions – worldwide and for many industries

The Henkel specialists for the SONDERHOFF portfolio
are available globally

Every year, more than 300 million seals are manufactured in more than 50 countries using products from Henkel's Sonderhoff portfolio. At our Centers of Expertise and Regional Hubs, our specialists offer application engineering advice, e.g. selecting a suitable material system and sampling of your components, as well as project management for dosing systems and automation. You will receive training from us on how to use the FIPFG technology and we will support you with the selection of spare parts and a regular service offering. Furthermore, we will be pleased to take over parts of your production for you – from small to large series – at our subcontracting locations.

Sales staff at all other Henkel locations worldwide will also be happy to answer any questions and provide you with further information on our sealing, bonding, and potting solutions. We look forward to hearing from you.

KOLO, POLAND
External Subcontracting Location

DÜSSELDORF, GERMANY
Center of Expertise

ELGIN, ILLINOIS, USA
Regional Hub

RICHMOND (KANSAS CITY), USA
Regional Hub

DORNBIRN, AUSTRIA
Center of Expertise

BARCELONA, SPAIN
External Subcontracting Location

OGGIONO, ITALY
Regional Hub

INCHEON, KOREA
External Subcontracting Location

SHANGHAI, CHINA
Regional Hub

PUNE, INDIA
Regional Hub

PUNE, INDIA
External Subcontracting Location

SÃO PAULO, BRAZIL
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