

CHEMOTHERM

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Graphite/ Metal Laminates

Technical Data Sheet 141 (previously TDS 641)

Edition: 04/2025, supersedes all prior editions.

Please see the latest issue at www.reinz-industrial.com

Material **CHEMOTHERM** is the designation for asbestos- free materials made of expanded graphite and various metal cores.

Designation	Core type	Core material	Thickness
CHEMOTHERM SP	tanged core	galvanized steel	0.2/0.25 mm
CHEMOTHERM SPE	tanged core	1.4401	0.1 mm

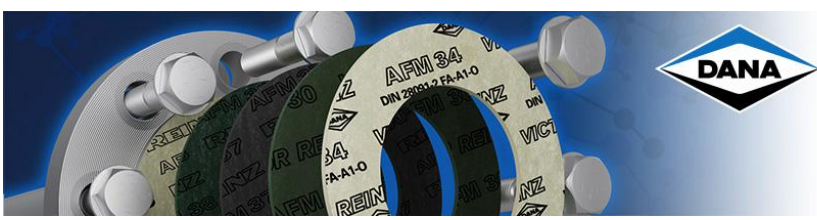
Properties **CHEMOTHERM** is characterized by exceptionally good chemical and thermal resistance, high compressibility, i.e. good conformability to irregular and rough sealing faces, low creep, good gas sealability, and consistent material properties even under alternating operating conditions. The tanged core guarantees excellent resistance against blow- out at high pressures.

Application **CHEMOTHERM SP** is used to seal cylinder heads and exhaust systems of IC engines and wherever high, alternating thermal and mechanical stress is encountered and where the medium to be sealed allows the use of a zinc-galvanized steel core. This version is also a very economical alternative to **CHEMOTHERM SPE**.

Thanks to its stainless steel core, **CHEMOTHERM SPE** covers the same application range of **CHEMOTHERM SP**. However, the material is also used primarily to seal aggressive media in pipelines and apparatus construction.

Approvals **CHEMOTHERM SPE:**

DIN- DVGW	In accordance with DIN 3535, Part 6
BAM	German Federal Institute for Materials Research and Testing. Gaskets for flanged joints of copper, copper alloys, and steel. Gaseous oxygen up to 130 bar and 200 °C. Liquid oxygen.
Germanischer Lloyd (DNV GL)	Approval for shipbuilding



CHEMOTHERM

Technical Data
CHEMOTHERM SP
(nominal thickness
2.0 mm)

Purity of graphite layer		
ash content	%	< 4
chloride content	ppm	< 50
Initial density of graphite layer	g/ cm ³	1.0 - 1.1
Residual stress acc. to DIN 52 913 16 h, 300 °C	N/ mm ²	> 45
Compressibility and recovery acc. to ASTM F 36, procedure J		
compressibility	%	15 - 25
recovery	%	> 20
Sealability against nitrogen acc. to DIN 3535, part 6 (FA)	mg/ (s·m)	< 0.1
Swelling acc. to ASTM F 146:		
in IRM 903 Oil (replaces ASTM Oil No. 3) 5 h, 150 °C		
increase in thickness	%	< 5
in ASTM Fuel B 5 h, room temp.		
increase in thickness	%	< 10
Operating temperature in inert or reducing atmosphere		up to the operating limits of the core material used
in air	°C	-200 up to +450
Operating pressure (max.)		
at 450 °C	bar	100



The data quoted above are valid for the material "as delivered" without any additional treatment. In view of the countless possible installation and operating conditions, definitive conclusions cannot be drawn for all applications regarding the behaviour in a sealed joint. Therefore, we do not give any warranty for technical data, as they do not represent assured characteristics. If you have any doubt, please contact us and specify the exact operating conditions.



CHEMOTHERM

Technical Data
CHEMOTHERM SPE
(nominal thickness
2.0 mm)

Purity of graphite layer			
ash content	%		< 2
chloride content	ppm		< 50
Initial density of graphite layer	g/ cm ³		1.0
Residual stress acc. to DIN 52 913 16 h, 300 °C	N/ mm ²		> 48
Compressibility and recovery acc. to ASTM F 36, procedure J			
compressibility	%		30 - 45
recovery	%		10 - 20
Sealability against nitrogen acc. to DIN 3535, part 6 (FA)	mg/ (s·m)		< 0.08
Swelling acc. to ASTM F 146:			
in IRM 903 Oil (replaces ASTM Oil No. 3) 5 h, 150 °C			
increase in thickness	%		< 5
in ASTM Fuel B 5 h, room temp.			
increase in thickness	%		< 10
Operating temperature in inert or reducing atmosphere		up to the operating limits of the core material used	
in air	°C		-200 up to +450
Operating pressure (max.) at 450 °C	bar		100

Sealing parameters see corresponding [Tables](#)



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Form of delivery

CHEMOTHERM SP, CHEMOTHERM SPE

Gaskets according to a drawing, dimensions supplied, or other arrangements

Rolls up to 500 mm wide

Nominal thicknesses
1.0 mm/1.5 mm/2.0 mm, other thicknesses by agreement.

Tolerances according to DIN 28 091-1