



HHS[®] RANGE



CERTIFICATES AND SUPPORTING DOCUMENTS

To ensure that you are on the safe side, our adhesive lubricants have been certified and approved according to several standards. Special emphasis is placed on adhesive lubricants used in the food processing industry. These products are suitable when contact with food is inevitable. The respective certifications and supporting documents can be found in the online shop together with the product.

NSF®

Products bearing an NSF® logo have been tested and registered by the National Sanitary Foundation. NSF® is the only international registration that guarantees that a product can be used in the food processing industry without posing any health risks.



H1 CERTIFIED LUBRICANTS

Lubricants that can be used in the food processing sector when incidental, unintentional contact with food cannot be ruled out.



FREE OF N-HEXANE

Hexane is used in organic chemistry as a solvent to extract oil and grease. Hexane is potentially addictive, harmful to the health and hazardous to water. This is why we strive to sell products that do not contain any hexane.



KOSHER

For labeling products that can be considered kosher, i.e. fit for consumption according to Jewish religious dietary laws.



HALAL

For labeling products that can be considered halal, i.e. fit for consumption according to Islamic religious dietary laws. The requirement for halal certification does not only cover the foodstuffs themselves but also auxiliaries and additives.



ALLERGEN-FREE

Since 13 December 2014, the EU Food Information Directive 1169/2011 has been in force all across Europe. In accordance with this directive, we strive to sell products that do not contain any food allergens.



GMO-FREE

In order to produce non-genetically modified food, it is essential that auxiliaries and additives have not been genetically modified either.

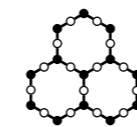


Development and production are carried out in accordance with ISO 21469

HIGH-TEMPERATURE SOLID LUBRICANT BORON NITRIDE

The latest generation of lubricants from boron nitride is clean, free from PTFE and silicone oil and with outstanding properties at high temperatures.

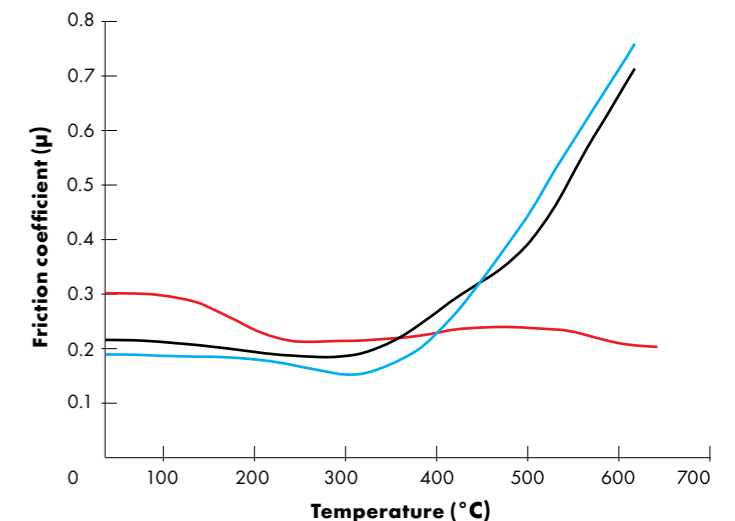
Currently, the most common additive for lubricants is PTFE. However, PTFE is not resistant to high temperatures and is now under debate as ECHA classifies it as microplastics. For our latest generation of lubricants we rely on boron nitride, a natural raw material, also known as "inorganic" or "white graphite". The hexagonal modification (h-borinitride), which is similar to graphite, is used as a lubricating agent. In contrast to graphite, the friction coefficient of hexagonal boron nitride remains stable in excess of 1000 C which is why it is very suitable as high-temperature solid lubricant under vacuum. At high temperatures (1,400–1,800°C) and high pressure (> 6GPa), the hexagonal modification changes to the cubic modification, analogous to the conversion of graphite to diamond. Both boron nitride modifications are white and do not conduct electricity at low and moderate temperatures.



BORNITRID

The boron nitride label resembles the hexagonal shape of a boron nitride molecule.

Properties	Boron nitride	Graphite	MoS ₂	PTFE
Heat resistance > 400°C	●●●●	●●●	●●●	○
Heat dissipation	●●●●	●●●	●	○
Electrical insulation	●●●●	○	○	●●●●
Oxidation resistance at temperatures > 400°C	●●●●	●	●	○



●●●● Very high ●●● High ●● Average ● Low ○ None

■ Boron nitride ■ Graphite ■ MoS₂

Source for chart and table: <https://www.bn.saint-gobain.com/sites/imdf.bn.com/files/idealube-bn-platelets-de.pdf>

HHS® PRODUCTS

VISCOSITY

OIL ←

→ GREASE

PRODUCT	HHS® 6000 PLUS	HHS® 5000	HHS® 2000 PLUS	HHS® 2000	HHS® 1000	HHS® 500	HHS® 200 PLUS	HHS® 200	HHS® 100	HHS® CLEAN
Type	High-performance lubricant with boron nitride	High-performance fully synthetic penetrating oil with PTFE	Adhesive lubricating oil with boron nitride resistant to high pressures	Adhesive lubricant resistant to high pressures	Non-drip low-viscosity grease with dual effect: penetrating properties of an oil, adhesive and pressure-resistant like grease	Dirt and dust-repellent spray grease with long-term effect and OMC ₂	Spray grease with boron nitride resistant to high pressures	White high-performance maintenance grease with PTFE	Non-drip high-performance dry lubricant with PTFE	Highly effective pre-cleaner with adhesion promoter
Solid lubricant	Boron nitride	PTFE	Boron nitride	-	-	OMC ₂	Boron nitride	PTFE	PTFE wax	-
Colour	Yellowish	Transparent	Whitish	Yellowish	Yellowish	Opal green	Beige	Brilliant white	Yellowish	Green
Consistency	Synthetic oil	Full synthetic oil	Synthetic oil	Semi-synthetic oil	Synthetic oil and grease	Synthetic grease and lithium soap	Synthetic grease	Mineral oil and lithium soap	Synthetic wax	Mineral oil
Density	Not applicable to oils	Not applicable to oils	Not applicable to oils	Not applicable to oils	1	2	2	2	3	-
Viscosity	23	200	612	1.500	2.000	Not applicable to greases	1,000	Not applicable to greases	Not applicable to greases	-
Density at 20°C in g/ml	0.834	0.77	0.855	0.75	0.77	0.77	0.795	0.78	0.76	0.76
Temperature										
Usage temperature range in °C from	-40	-20	-40	-35	-25	-25	-40	-15	-30	-
Usage temperature range in °C to	180	200	180	180	170	150	180	130	100	-
Temporary usage temperature range in °C	1,000	250	1,000	200	200	170	1,000	200	180	-
Dropping point in °C	180	200	180	180	170	150	180	130	100	-
Flash point in °C (without solvents)	200	250	200	230	200	240	200	200	130	-
Flash point in °C (with solvents)	-40	-30	-40	-20	-20	-20	-40	-20	-20	-
Resistance, wear protection, service life	25	158	37	78	86	153	24	163	350	-
SRV (DIN 51834), wear rate										
Resistance and durability										
Oxidation resistance	Excellent	Excellent	Excellent	Good	Good	Good	Excellent	Excellent	Good	-
Material durability										
• Elastomers	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	-
• Plastic	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	-
Coated surfaces	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	-
Corrosion protection	-	0 - 1	-	0 - 1	0 - 1	0 - 1	0 - 1	1	0	-
SKF-Emcor-method (DIN 51802), corrosion degree										
Shelf life in months	24	30	24	30	30	30	24	30	30	24
Application method	Shake can well before use. Thoroughly pre-clean the parts to be treated. Then spray onto the cleaned surface.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Shake can well before use. Thoroughly pre-clean the parts to be treated. Then spray onto the cleaned surface.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Shake can well before use. Thoroughly pre-clean the parts to be treated. Then spray onto the cleaned surface.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Shake can thoroughly. Thoroughly pre-clean the parts to be treated with HHS® CLEAN, art. no. 0893 106 10. Then spray onto the cleaned surface from a distance of approx. 20 cm.	Spray HHS® Clean on dirt or stains for removal without post-treatment.
Delivery size	400 ml	500 ml	400 ml	500 ml, 150 ml	500 ml	500 ml	400 ml	400 ml	400 ml	500 ml
Packaging unit	1/12	1/12	1/12	1/6/12/24	1/12	1/12	1/12	1/6/12	1/12	1/12
Certifications										
Art. no.	0893 106 202	0893 106 3	0893 106 203	0893 106	0893 106 4	0893 106 5	0893 106 204	0893 106 7	0893 106 6	0893 106 10

WHEN, WHAT, AND WHAT FOR?

Different applications require different products. But which product is suitable for my use case? Our adhesive lubricant matrix is a useful guide to support you in selecting the right lubricant for your project. On the following pages, the matrix allows you to compare application-specific requirements with the strengths and properties of our HHS® products. Our experts recommend the PLUS series as these products meet any requirement and you can say:

“Everything runs smoothly!”



WHY PLUS? BECAUSE THESE PRODUCTS SIMPLY HAVE THE ADDITIONAL PLUS!

The PLUS stands for the following benefits:

- The new additive boron nitride allows for use at significantly higher temperatures
- Only few hazard labels thanks to considerably lower risk potential, less harmfulness for people's health and the environment
- Approvals for the food industry confirmed by NSF
- Approvals such as allergen-free, kosher and halal all applicable to one product line

SUITABLE PRODUCTS FOR YOUR APPLICATIONS

Application/required product property	Penetration capability	High-pressure resistance	Temperature resistance	Corrosion protection	Adhesive strength	Long-term effect	Dirt-repellent effect	NSF	WÜRTH RECOMMENDS
Fast-running chains	••	•	•	•••	•••	•	•••	○	HHS® 500
	•	••	••	•••	•	••	•••	○	HHS® 100
	••••	••••	••••	••••	•	••••	••	•	HHS® 200 PLUS
Chains exposed to high temperatures	••	••	•••	••	••	•	••	○	HHS® 2000/ HHS® 1000
	•	••••	••••	••••	••••	••••	•	•	HHS® 2000 PLUS
Open steel gears	•	••	•	•••	••	•••	•••	○	HHS® 500
	••••	••••	••••	••••	••••	••••	••	•	HHS® 200 PLUS
Steel gears in gearbox	••	••	••	•	••	••	•	○	HHS® 2000
	•	•••	•••	•••	••••	••••	•	•	HHS® 2000 PLUS
Plastic gears	•	•••	•	•	••	•••	••	○	HHS® 1000/ HHS® 2000
	••••	••••	••••	••••	••••	•	•	•	HHS® 2000 PLUS
Gear racks	•	•••	•	••	••	••	••	○	HHS® 2000
	••••	••••	••••	••••	••••	••••	•	•	HHS® 2000 PLUS
Gear, accelerator and clutch linkages	•	•••	••	••	•	••	•	○	HHS® 2000
	••••	••••	••••	••••	••••	••••	•	•	HHS® 2000 PLUS
Slide rails	•	•••	••	•••	•	••	•••	○	HHS® 1000
	••••	••	•••	•••	•	••	••	•	HHS® 6000 PLUS
Slide bearings	•	•••	••	•••	•	••	•••	○	HHS® 500
	••••	••••	••••	••••	••••	••••	••	•	HHS® 200 PLUS
Rolling bearings	••••	••	••	••	••	•••	•••	○	HHS® 2000
	•	•••	••	••	••••	•••	•	•	HHS® 2000 PLUS
	••••	••	•••	••	••	•••	•••	○	HHS® 5000
••••	••	•••	•••	•	••	••	•	HHS® 6000 PLUS	
Storage/preservation	••	•	•	•••	•	•••	•••	○	HHS® 100
Joints	••••	••	•	••	••	••	•	○	HHS® 5000
	••••	••	•••	•••	•	••	••	•	HHS® 6000 PLUS
Hinges	••••	••	•	••	••	••	•••	○	HHS® 500
	•	••••	••••	••••	••••	••••	••	•	HHS® 200 PLUS
Vehicle door checks	•	••	•	••	••	•••	•••	○	HHS® 200
	••••	••••	••••	••••	••••	••••	••	•	HHS® 200 PLUS
Wire ropes on e.g. pulleys	••	••	••	•••	••	••	•••	○	HHS® 500
	•	••••	••••	••••	•••	••••	••	•	HHS® 200 PLUS
Fast-running wire ropes	••••	•	•	•••	•••	••	•••	○	HHS® 100
Bowden cables	••	••	•	•	•	•••	•••	○	HHS® 500
	•	•••	•••	•••	••••	•••	•	•	HHS® 2000 PLUS
	••••	••	•••	•••	•	••	••	•	HHS® 6000 PLUS
Struts	•	••	••	•••	•	••	•••	○	HHS® 500
	•	••	••	•••	•	••	•••	○	HHS® 100
	••••	••••	••••	••••	••••	••••	••	•	HHS® 200 PLUS

•••• Very high ••• High •• Average •• Low ○ None



HHS[®] RANGE

#READY
FOR WORK

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