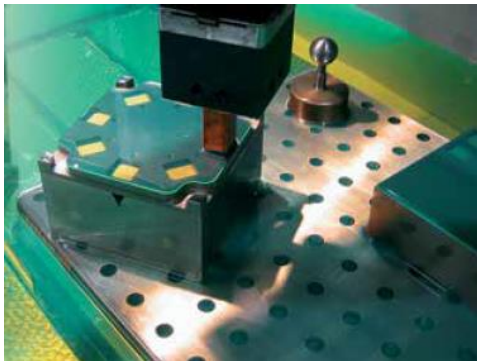
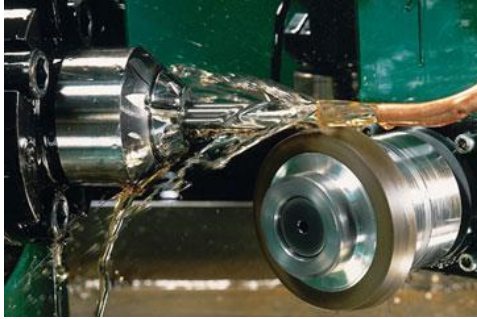




oelheld®
innovative fluid technology

Products



- Grinding Oils
- Grinding Oils (Tools Grinding)
- Di-electric Fluid
- Coolants
- Honing Oil
- Forging Oil



Grinding Oils

Versatility

DiaGrind 535/ 15

- gear grinding
- gear cutting
- gear shaping
- gear shaving



DiaGrind 535/ 25

- gear hobbing
- gear shaving
- gear shaping



DiaGrind 535/ 5

- gear honing



Product Overview

DiaGrind Sereis

Technical Facts	Diagrind 535/15	Diagrind 535/25	Testing Method
	Data	Data	
Density at + 15° C (g/cm ³)	0.88	0.88	ASTM D 7042
Kin. Viscosity at + 40° C (mm ² /s)	15	25	ASTM D 7042
Flash Point (° C)	160	180	DIN EN ISO 2592
Corrosive effect on copper	4	4	EN ISO 2160

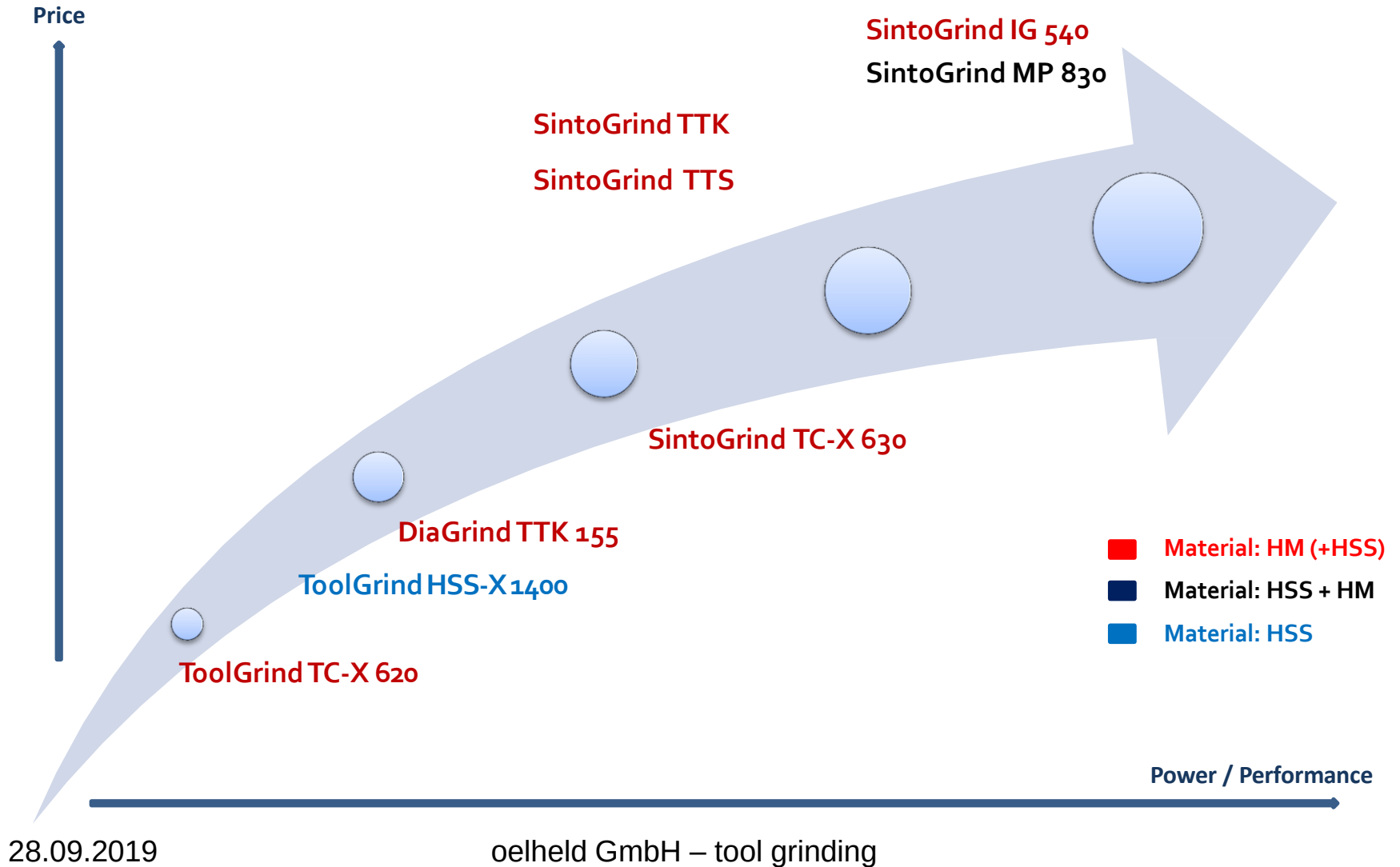
Recommendations from Manufacturers





Grinding Oils for Carbide & HSS Tool grinding

Oils for Carbide and HSS grinding



Fluids selected according to material

Grinding Oils	Materials	Benefits
SintoGrind TTK	Tungsten carbide, PCD, CBN, HSS	Surface finish, performance, lifetime grinding wheel
SintoGrind IG 540(5th generation grinding fluid)	Tungsten carbide, PCD, CBN, HSS	Surface finish, performance, lifetime grinding wheel
SintoGrind TC-X 630	Tungsten carbide, PCD, CBN, HSS	Performance, price aggressive grinding fluid of the SintoGrind-series

Product Overview

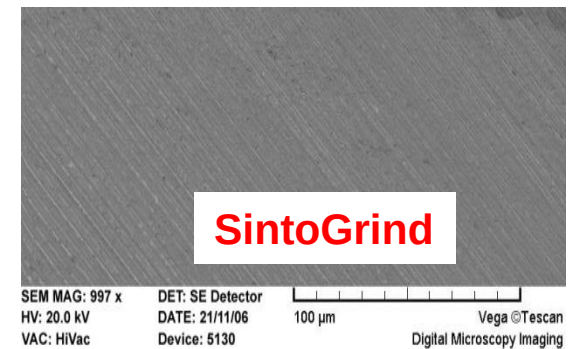
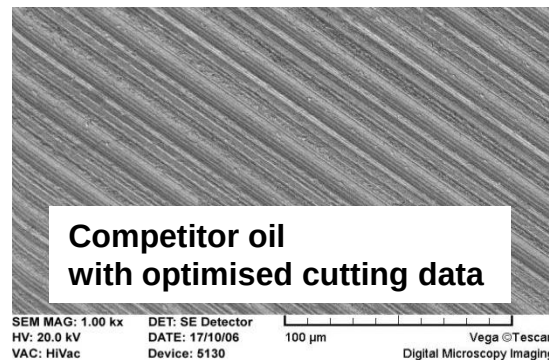
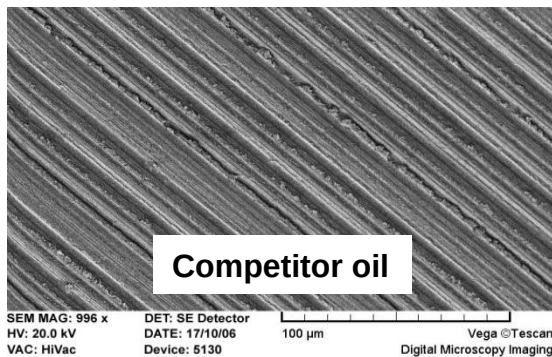
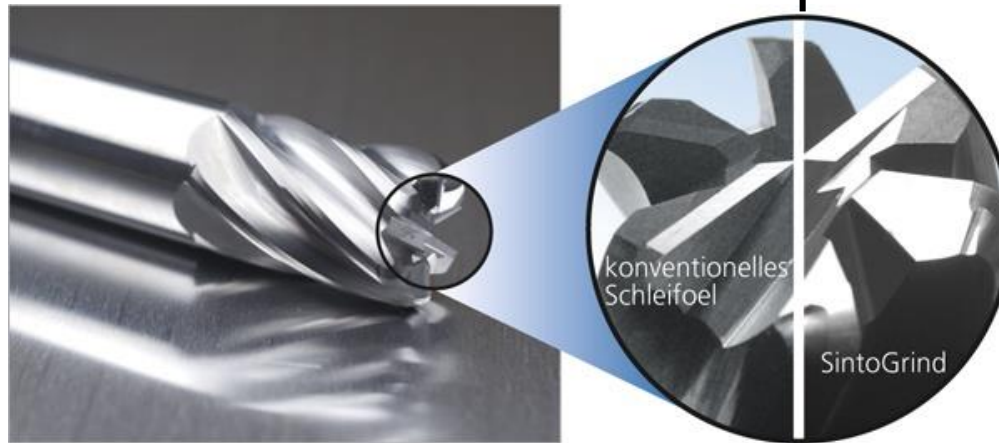
Material: carbide and steel < 30%

Technical Facts	SintoGrind IG 540	SintoGrind TTK	SintoGrind TC-X 630	Testing Method
	Values	Values	Values	
Density at + 15° C (g/cm3)	0.80	0.80	0.81	ASTM D 7042
Kin. Viscosity at + 40° C (mm2/s)	5.4	5.3	6.3	ASTM D 7042
Flash Point (° C)	>150	>150	>150	DIN EN ISO 2592
Copper Corrosion	1a	1a	1a	EN ISO 2160

Surface finish Comparison

Competitor

SintoGrind



Recommendations from Manufacturers





Spindle Coolant

Corrosion protection fluid

ControXid 1642

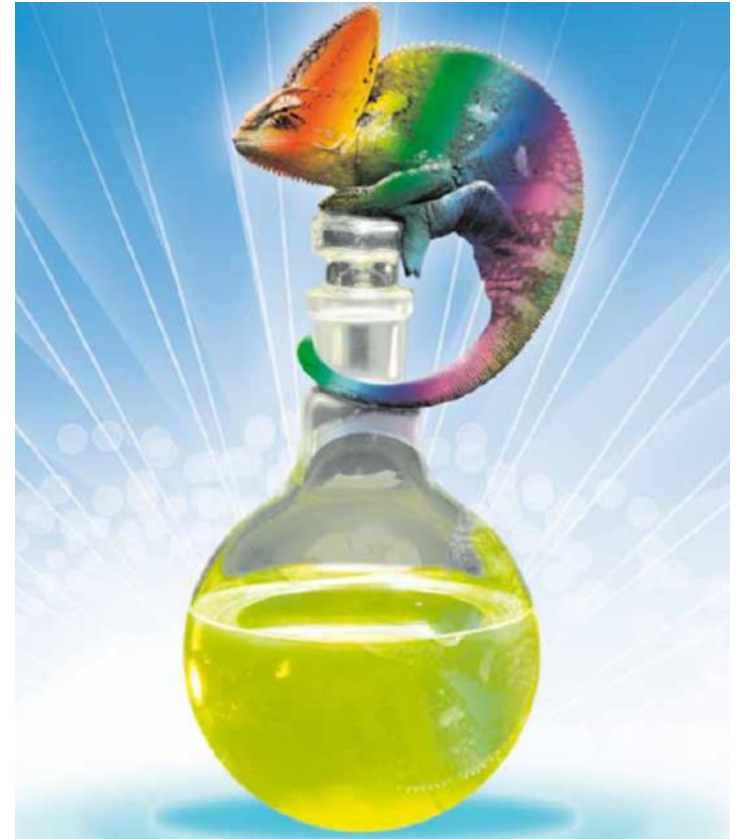
Applications:

ControXid 1642 protects ferrous metals (steel, cast iron) against corrosion and has no effect on aluminium alloys, other nonferrous metals or mineral oil-based sealing materials.

Technical Facts	ControXid 1642
	Values
Color	Blue
Density at + 15° C (g/cm3)	1.03
Kin. Viscosity at + 40° C (mm2/s)	3-4
pH-value	Ca. 9.2
Refractometer	16.%

Dielectrics

EDM



The right dielectric for every machine!

Our dielectrics for EDM can be sub-divided into 3 product categories:

IonoPlus[®] Series

IME Series

(shaded for easier identification)

EcoSpark 105

(shaded for easier identification)



**EDM
erosion discharge machines:
IonoPlus[®] / IME / EcoSpark**

**EDM
wire cutting machines:
IonoFil / ControFil 2**

**EDM
fast hole drilling machine:
IonoVit**

digital transfer

OEM's and preferred dielectrics

OEM	Dielctrica	Main Application	Ra [µm]
Mitsubishi	IonoPlus IME-MH	finishing and roughing	~ 0,1
OPS-Ingersoll	IonoPlus IME-MH, IonoPlus IME-GL	finishing and roughing	~ 0,3
Zimmer und Kreim	IonoPlus IME-ZK, IonoPlus IME-MH	finishing and roughing	~ 0,1
GF Machining Solutions	IME 110, IME 126, IonoPlus IME-MH	fine work and roughing	bis 0,05
exeron	IonoPlus IME-MH, IonoPlus IME-ET	finishing and roughing	0,2
MAKINO	IonoPlus IME-MH, IonoPlus IME-ET	fine work and roughing	bis 0,06
Sodick	IonoPlus IME-MH	fine work and roughing	~ 0,1

This applies to machines manufactured since 2000!

technical data of the IME dielectrics				
	IME 63	IME 82	IME 110	IME126
color	clear	clear	clear	clear
Density at 15°C g/cm ³	0.765	0.789	0.775	0.824
Viscosity cSt at 20°C	1.8	3	3.4	5.8
Flash point °C (PM)	63	82	106	114
Pour point °C	-40	-40	-6	-5
class of hazard VbF	A III	A III	n.a.	n.a.
water pollution class (WGK)	1	1	1	1
field of application	fine work	universal	universal	mainly roughing

technical data of the IonoPlus dielectrics				
	IonoPlus IME-ET	IonoPlus IME-ZK	IonoPlus IME-MH	IonoPlus IME-GL
color	green, fluorescent	green, fluorescent	green, fluorescent	green, fluorescent
Density at 15°C g/cm ³	0.77	0.79	0.79	0.82
Viscosity cSt at 20°C	1.8	3	3.8	3,8 bei 40°C
Flash point °C (PM)	63	82	107	125
Pour point °C	<-40	<-40	-15	
class of hazard VbF	A III	A III	keine	keine
water pollution class (WGK)	1	1	1	1
field of application	fine work	universel	universel	mainly roughing

Recommendations from Manufacturers



exeron

experts in EDM + HSC



CHARMILLES 

Sodick



ZK *simply genius*



Dielectrics Fast Hole Drilling

28.09.2019

oelheld[®]
innovative fluid technology

IonoVit[®] 0 - IonoVit[®] S
Dielectric fluids for EDM fast hole drilling machines



The solution...

Human Technology
for man, environment
and machines
HUTEC

- **Fast hole drilling with**

IonoVit S

IonoVit 0

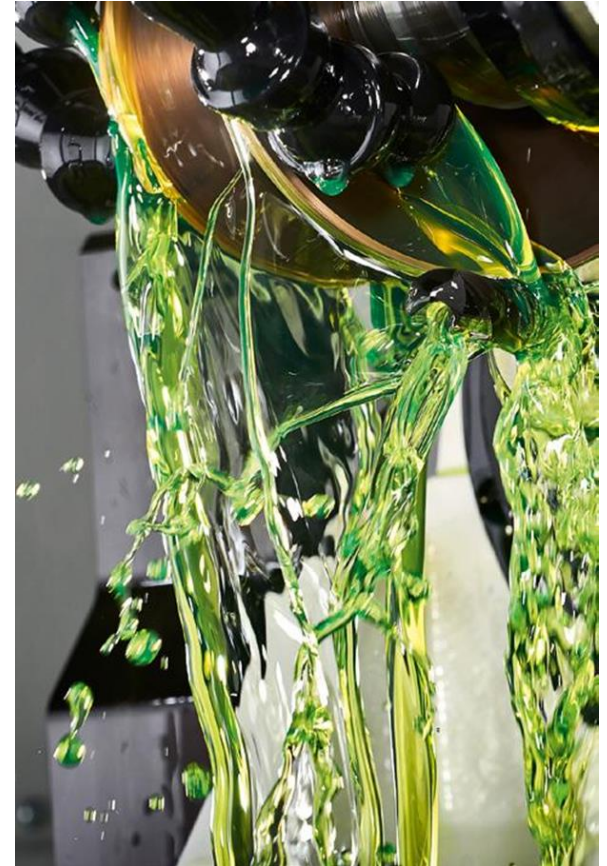


Comparison of the Fluids

	IonoVit S	IonoVit 0	Deionised Water
Speed	+	-	-
Electrode wear	+	-	-
Dirt	+	+	+
Foam	+	+	+
Corrosion protection	+	+	-
Hole diameter $\geq 0,5\text{mm}$	+	+	+
Hole diameter from 0,1mm on	-	+	+
Parameter modification	+	-	-
Support by parameter modification	+	-	-
Delivery time	+	+	+

Fast Hole Drilling

PCD tools – EDM + grinding



IonoGrind: EDM + grinding



IonoGrind



IonoGrind



IonoGrind 165

IonoGrind – Product Overview

IonoGrind is a multifunction fluid that is equally suitable for spark erosion and as a grinding oil. It has been designed for use in combination machines and unites the advantages of a high-performance dielectric for a high rate of metal removal and good surface quality with a high-speed grinding oil that produces very little foam and vaporization.

IonoGrind	Values	Testing Methods
Colour:	green	
Density @ 15 °C (g/cm ³)	0,84	ASTM D 7042
Viscosity @ +20 °C (mm ² /s)	14	ASTM D 7042
Viscosity @ +40 °C (mm ² /s)	7,3	ASTM D 7042
Flashpoint (°C)	155	DIN EN ISO 2719

AquaTec

Water-Mixable Metal Working Fluids



Different types of Water-Mixable Products



Different types of Water-mixable products

Emulsions



- Milky, translucent
- Mainly non-soluble
- Emulsifying system
- Emulsifies other oils

Advantages

- ✓ Wide application range
- ✓ Excellent lubrication
- ✓ Good corrosion inhibition
- ✓ Top flushing properties
- ✓ Skin approved

Solutions



- Transparent, clear
- All components are water-soluble
- No emulsifying system
- Other oils will be separated

Advantages

- ✓ Extremely stable, long life time
- ✓ Low foam even at high pressure
- ✓ Top cooling and flushing properties
- ✓ No cobalt leaching
- ✓ Skin approved

Honing Oil – DiaMond Superfinish Oil

Technical Specifications

DiaMond	80	100	120	135	160	Norm
Density at +15 °C [g/cm ³]	0,79	0,78	0,82	0,82	0,83	ASTM D 7042
Kin. viscosity at +20 °C [mm ² /s]	3,0	3,4	5,8	6,8	9, 8	ASTM D 7042
Kin. viscosity at +40 °C [mm ² /s]	2,0	2,4	3,6	4,0	6, 0	ASTM D 7042
Flashpoint [°C]	80	106	114	132	160	DIN EN ISO 2719
Pourpoint [°C]	-40	-5	-5	<-10	<-5	DIN ISO 3016
Danger class (VbF)	A III	-	-	-	-	

Advantages

- Life of grinding wheels and honing tools is five times as long = highest possible repetitive accuracy
- Cutting rate is increased
- Good cooling properties helps to prevent heat cracks
- High quality rinsing together with optimal filtration
- No bad smell, pleasant to the skin, non-toxic



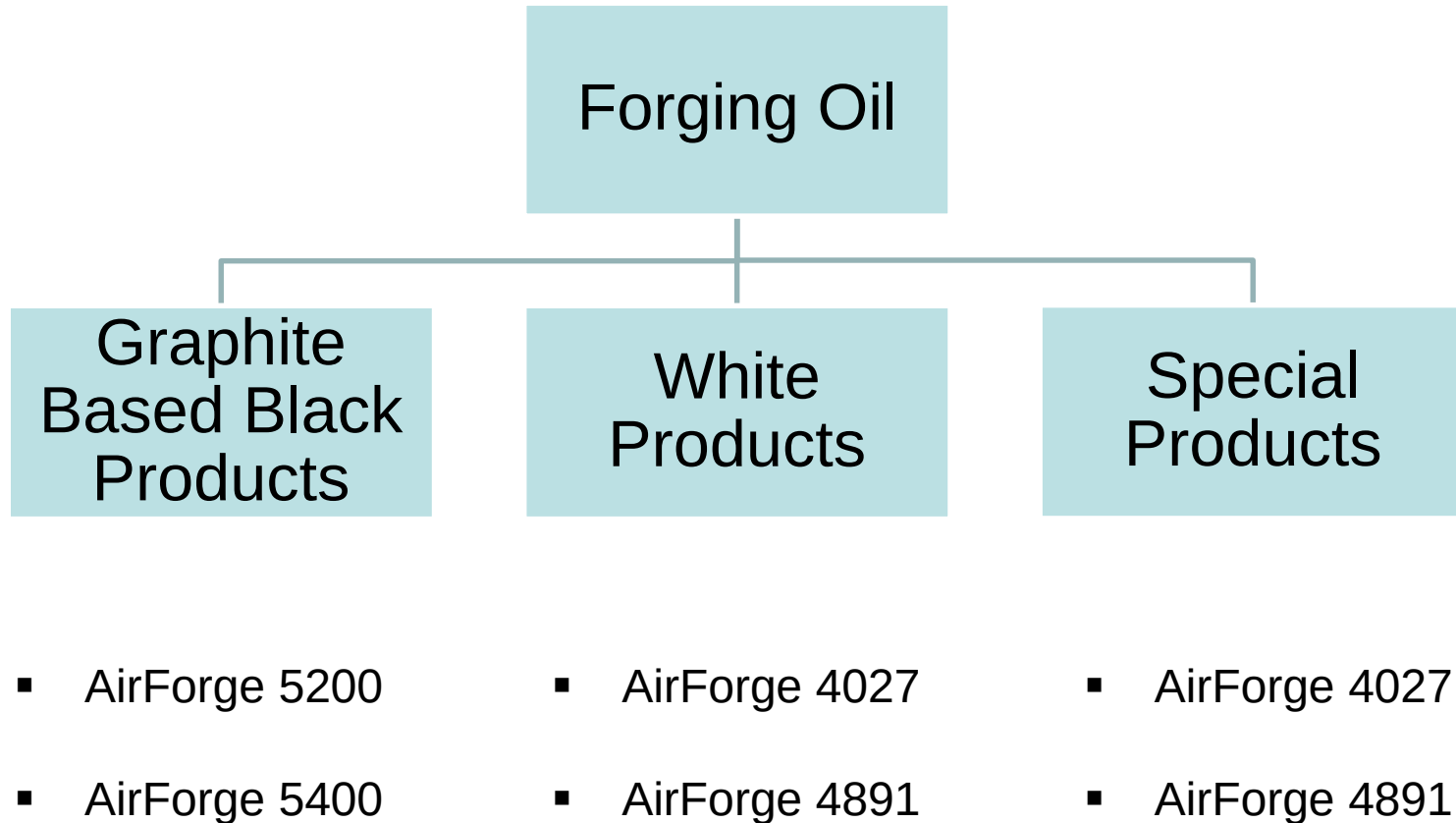
Forging Oil





- Clean & sharply pronounced recessed lettering and engravings
- Superior release, cooling and discharge properties
- Well defined shapes on deep cavities
- Increased tool life
- Reduced down-time
- Excellent wettability
- Perfect part quality
- No build-ups
- Economical & Environmentally friendly
- Skin friendly through low pH value

AirForge- Forging Lubricant - Product Range





- Excellent tool die reproduction detail
 - Easy application & Good adhesion
 - Very good thermal insulation
 - Excellent high temperature lubrication
- Forms barrier against gas diffusion
 - No chemical reaction with metal surfaces
 - Excellent deforming properties
 - Good compatibility and water based

AirForge - Glass Coating Specifications

Glass-based release agent for hot forming of titanium and special alloys

	AirForge 2472	AirForge 1983	AirForge 2596	AirForge 2371
Color (selectable)	grey	grey	grey	grey
Density [20°C]	1.27 g/cm ³	1.28 g/cm ³	1.27 g/cm ³	1.28 g/cm ³
Active Ingredient [%]	40-50	40-50	40-50	40-50
Carrier	Water	Water	Water	Water
Melting Point	750 - 950 °C	830 - 930°C	900 - 1100°C	950 - 1150°C
Alloys	Titanium	Titanium Nickel	Titanium Nickel	Titanium Nickel Steel

Thank you for your attention !



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