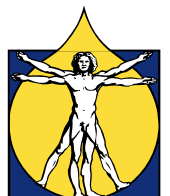


Grinding Fluids



**Synthetic
intelligence!**

Human Technology
for man, environment
and machines



HUTECH

Strong fluids for your application



Quality as the key to success!



Dr. Manfred Storr
Managing Director

When Carl Christian Held started the production of machine oils and greases in 1887, he laid the foundation stone for a medium-sized company that over the past decades has established itself as a specialist in the lubricants sector. oelheld GmbH has existed in its present form since 1989, and has been managed by Dr. Manfred Storr since 1973.

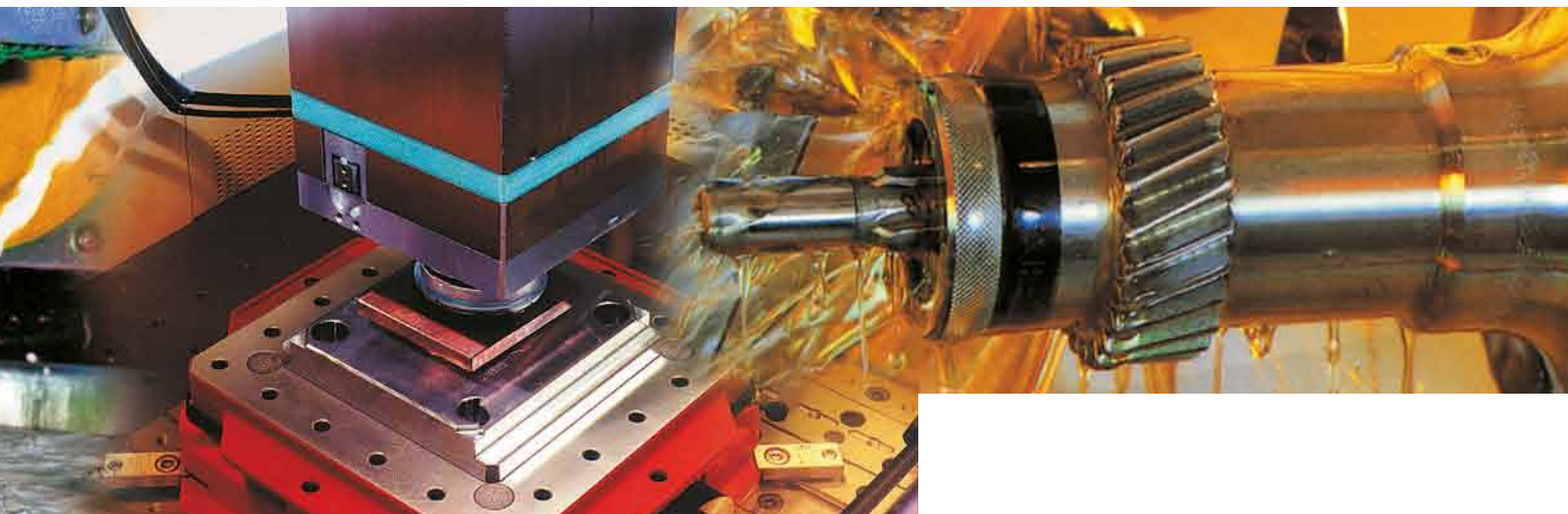
Innovative fluid management and stringent product development and quality assurance are the key to the success of our products.

Numerous machine manufacturers therefore develop products together with us that are specially tailored to the demands of their machines. That naturally applies also to our customer.

Our many years of experience with high-tech lubricants also enable us to work intensively to the specific demands of our customers and to adapt existing fluids to a wide range of different production processes.

In order to achieve this, oelheld GmbH works not only very closely with various universities but also has its own laboratories equipped with the latest analysis apparatus and numerous test rigs.

The engineers and technicians in our Research department develop tailored products here that have proven themselves worldwide for many years using the latest basic oil and additive technologies. Metal processing oils, dielectrics and water-miscible cooling lubricants account for the largest proportion of our broad assortment of basic products. We regard these areas as our spheres of key competence and have proved this through numerous patented and extremely successful products.



The benefits with oelheld

- **Faster machining**
- **Less tool wear**
- **Better surface finish**
- **Low foaming**
- **No filter problems**
- **Good compatibility with all machine parts**
- **Manufacturers' approvals**
- **No cobalt leaching**
- **No hairline cracks at the workpiece surfaces**
- **Resistant to ageing**
- **High flash points with low viscosity**

Health benefits



Human-Technology
for man, environment
and machines

HUTECH

- **Dermatological approvals**
- **No health hazards**
- **Neutral odour**
- **Low evaporation**
- **No heavy metals**
- **Free from or low in aromatics**

Human technology – a “must” at oelheld

Human technology is not just a trademark at oelheld GmbH – it is a guiding principle. Health endangering oil vapours, acrid odours and recurring cases of skin irritation are sadly commonplace in many production plants.

For this reason oelheld GmbH develops not only products that permit an optimum process, but also pays particular attention to the greatest possible health safety of the products.

Technical Data



The right grinding fluid for every machine!

Our grinding fluids can be divided into 3 product categories:

**PAO – polyalphaolefin
(SintoGrind Series)**

**Hydrocrack
(DiaGrind Series/DiaMond)**

(we have coloured each section to help distinguish between the sections.)

**Hydrocrack
(ToolGrind)**



The choice of the right product depends essentially on the respective process factors. A fundamental qualitative pre-selection can, however, be made. As polyalphaolefins are synthetically produced basic oils, they not only have a particularly high purity but are also characterised by their resistance. The incorporation of special additives developed in oelheld's own laboratories, products are created that impress with their versatility and quality.

Foaming behaviour of the basic oils

Poor foaming behaviour and air release properties result in filter systems foaming over and poor grinding results. Since the air trapped in the oil is compressed, the decompression that occurs when it leaves the cooling lubricant nozzle causes cavitation that results in increased wear. A laminar jet can no longer be directed onto the grinding wheel. The use of low-foam grinding oil with good air release properties thus increases the process reliability. The tests carried out in our development centre illustrate the foaming beha-

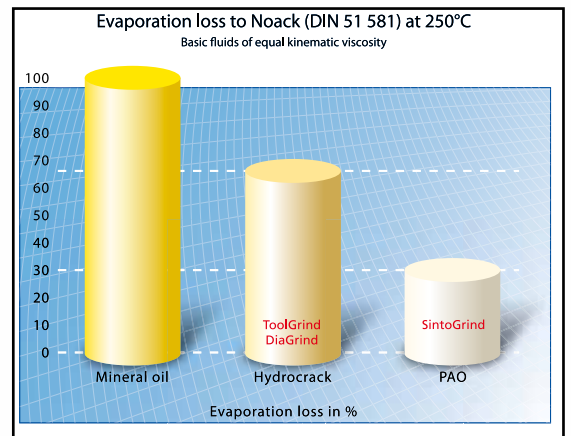
viour and air release properties of different basic oils. In the figures below, the sample bottles were each filled with mineral oil, hydrocrack and polyalphaolefin and heavily enriched with air. This creates foam and the air is trapped in the basic oil that is clearly visible as bubbles. A crucial factor for the foaming behaviour and air release property is how quickly the trapped air can escape from the basic oil and how quickly the foam thereby breaks down.





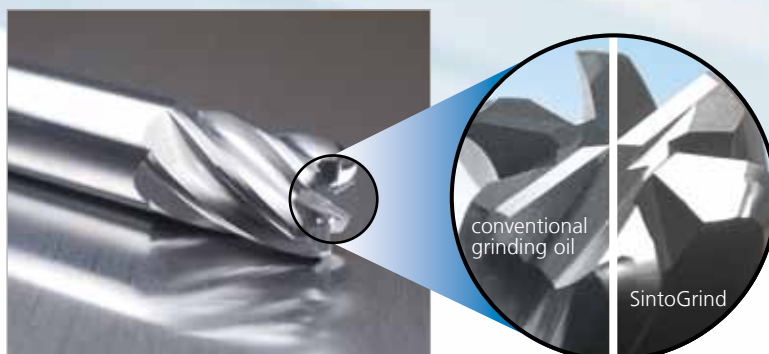
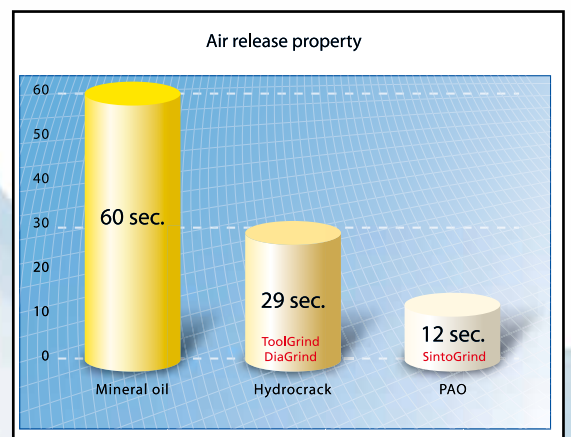
Evaporation loss

Despite a boiling point of the oil of 250° C, oil vapours are constantly produced due to evaporation. These result not only in a continuous loss of the medium (oil), but also significantly burden the surroundings of the machine and hence also the people employed in the company. The highest evaporation rates naturally occur with watersoluble cooling lubricants. Due to their uniform composition, polyalphaolefin-based grinding oils have a roughly two-thirds lower evaporation loss than conventional hydrocrack and mineral oil products.



Air release property

The air release property is determined by measuring how many minutes the air bound in the oil requires to leave the medium again down to a residual content of 0.2% v/v. Every air bubble trapped in the oil later interrupts the lubricant film of the medium during the process. Hence, the more air there is in the oil and thus in the process, the poorer will be the machining result. Polyalphaolefins are characterised in particular by an outstanding air release property and thus offer a significantly higher process reliability.



The figure shows the different grinding results with two different grinding oils under the same test conditions. The significantly better results in all the trials were obtained using the SintoGrind grinding oil developed by oelheld.

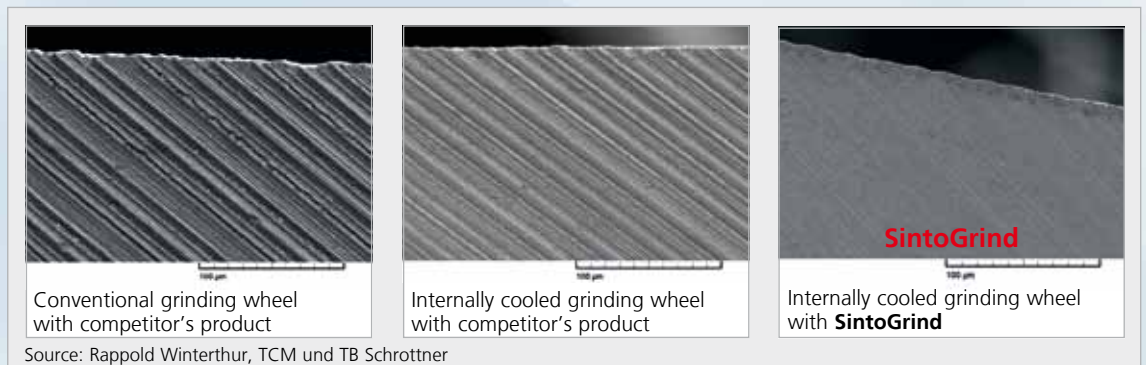
Overview



Tool grinding

In order to demonstrate the efficiency of our PAO grinding oils, we carried out a series of trials with leading companies from the grinding industry. The different ground parts were subse-

quently examined under a scanning electron microscope (SEM). The images below show clearly the difference in the surface quality of the parts ground using SintoGrind.



Gear grinding

A further problem that often results in parts becoming scrap is surface burning. This naturally reduces the profitability of the production and the time required increases. In order to be able to produce parts in the best possible quality, oelheld has also developed its products in numerous trials specially in order to overcome this problem.

Trials have shown that outstanding results can be achieved during gear grinding with the all-synthetic product SintoGrind from oelheld. With repeated applications it was possible to extend the intervals between the dressing cycles and

the intervals between the dressing cycles and the material removal to be significantly increased during gear grinding. This means not only an enormous saving in time but also an outstanding quality of the produced parts and less tool wear.

Grinding oils from oelheld thus offer excellent quality and are characterised in particular by the large number of advantages that pay off for your process – qualitatively and financially – as longer service lives and higher quality of the produced parts are convincing arguments that pay off in the long term.





Our products are specially developed for use with:

AGATHON AG, Solothurn

AKE Knebel GmbH & Co, Balingen

ANCA Europe GmbH, Mannheim

Deckel GmbH & Co KG, Weilheim

Doebli Profiltec AG, Gerlafingen

EWAG AG, Etziken

FMT Group, Bosconero

Gleason-Hurth Maschinen und Werkzeuge GmbH, München

Höfler GmbH, Ettlingen

HTT AG, Biel

K. Jung GmbH, Göppingen

Junker Maschinenfabrik, Nordrach

Kellenberger & Co AG, St. Gallen

Klingelberg GmbH, Hueckeswagen

Loroch GmbH, Mörlenbach

Mägerle AG Maschinenfabrik, Fehrltorf

Mikromat GmbH, Dresden

Reinecker Karstens Kopp GmbH,

Neu Ulm

Reishauer AG, Walisellen

Rollomatic S.A., Le Landeron

Saacke GmbH & Co, Pforzheim

Schaudt GmbH, Stuttgart

Schmidt GmbH & Co KG, Stuttgart

Schneeberger Masch. AG, Roggwil

Schütte GmbH & Co KG, Köln

STÄHLI Läpp Technik AG, Pieterlen/Biel

Fritz Studer AG, Thun

Tacchella Macchine S.p.A., Cassine

TTB Engineering SA, Riva S. Vitale

Ulmer Werkzeugschleiftechnik GmbH & Co.KG, Ulm

Vollmer Werke GmbH, Biberach

Voumard Machines Co.S.A., La Chaux-de Fonds

Peter Wolters AG, Rendsburg

Walter Maschinenbau GmbH, Tübingen

Wendt GmbH, Meerbusch

We wish to thank the following companies for their kind cooperation:

Rappold Winterthur Technologie GmbH, Villach (A), TCM Tool-Consulting & Management GmbH, Voitsberg (A), TB Schrottner, Krottendorf (A) und Höfler Maschinenbau GmbH, Ettlingen (D)

High-tech products for machines – worldwide!

oelheld GmbH is not only represented with its own sales offices and production plants in France, Great Britain and the USA, but also has various representatives in most countries.

oelheld U.S., Inc.
1760 Britannia Drive, Unit 1
Elgin, Illinois 60124
phone: +1-(847)-531-8501
fax: +1-(847)-531-8511
E-Mail: hutec-us@oelheld.com
web: www.oelheld-us.com

oelheld UK Ltd.
Unit 16, Colomendy Business Park, Erw Las
Denbigh, LL16 5TA.
Tel: +44 (0)1745-814-777
Fax: +44 (0)1745-813-222
E-Mail: sales@oelheldgroup.co.uk
Internet: www.oelheld.com

oelheld technologies SAS
Technopôle de Forbach-Sud
140, Avenue Jean-Eric Bousch, 57600 Oeting
Téléphone : +33 (0)3.87.90.42.14
Télécopie : +33 (0)3.87.84.66.91
E-Mail : hutec@oelheld.fr
Internet : www.oelheld.fr

oelheld (Shanghai) Trading Co., Ltd.
Room 1908, Hitime International Building
No.888, Sichuan Road(N)
Hongkou District, Shanghai, 200080
Phone: +86-21-36521751
Fax: +86-21-36521753
E-mail: hutec@oelheld.com.cn
Internet: www.oelheld.com.cn

- Argentina
- Austria
- Australia
- Belgium
- Bosnia
- Bulgaria
- Canada
- China
- Croatia
- Czech Republic
- Denmark
- Finland
- Indonesia
- Israel
- Italy
- Japan
- Kazakhstan
- Korea
- Malaysia
- Netherlands
- New Zealand
- Mexico
- Norway
- Poland
- Portugal
- Russia
- Serbia
- Singapore
- Slovakia
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Ukraine
- White Russia



Human Technology
for man, environment
and machines

HUTECH

oelheld[®]
innovative fluid technology

oelheld GmbH • Ulmer Strasse 135-139 • D-70188 Stuttgart
Telefon: +49 (0) 7 11 / 1 68 63 - 0 • Fax: +49 (0) 7 11 / 1 68 63 - 40
E-Mail: hutec@oelheld.de • Internet: www.oelheld.de