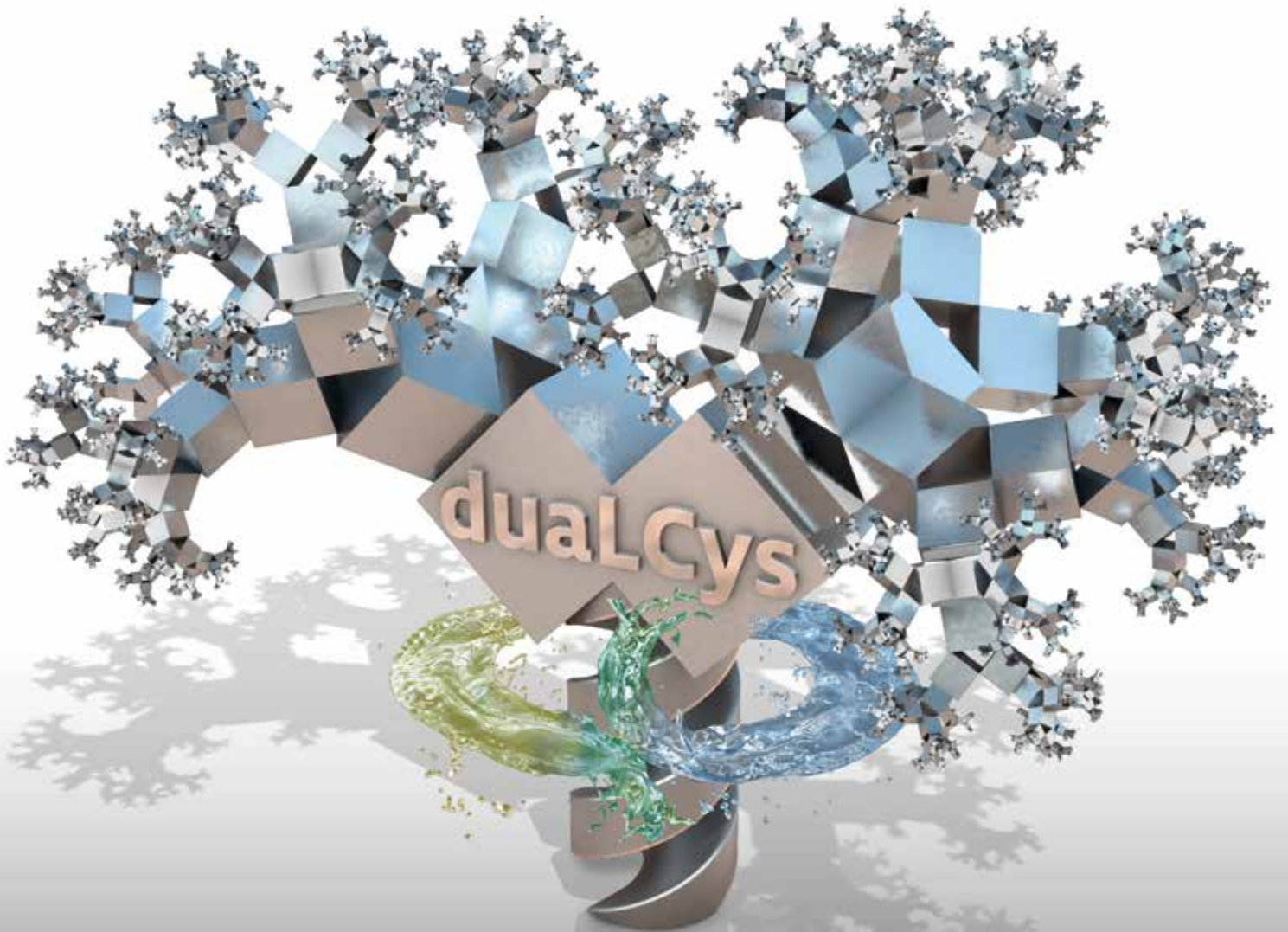


BONDERITE®

The BONDERITE dualCys Process

Grow Your Competitive Edge



Henkel

The BONDERITE dualCys Process

Henkel has a long history of providing value added cleaners and lubricants for over 100 years. The BONDERITE dualCys process is a unique concept in the area of machining and in-process cleaning for the metalworking market. It utilizes the synergy of recycling the in-process cleaner into the water soluble cutting fluid and is a perfect symbiosis between cleaner and lubricant, providing high lubricity, superior part cleanliness and excellent corrosion protection. The BONDERITE dualCys process leverages Henkel's extensive expertise in both lubrication and cleaning technologies.

Benefits



MARKET-DRIVEN TRENDS

COST REDUCTION

- > Cost saving through low topping up rate of lubricant and extended bath life time

PROCESS OPTIMIZATION

- > Low reject rate and high surface quality
- > Lower consumption and inventory requirements
- > Cleaning & lubrication performance in one

SAFETY & COMFORT

- > Long tool life
- > Bactericide & Boron-free
- > Eliminates routine biocide additions
- > Low foam

SUSTAINABILITY

- > Reduced carbon footprint due to less product consumption and low temperature application
- > Energy cost savings (washer startup and daily operation)
- > Low temperature cleaning
- > Waste reduction

Needs of the Market

- > Process cost reduction by providing low operating concentration and reduced drag out of product
- > Reduced water consumption and waste generation
- > Improved working conditions resulting from use of safer, more predictable solutions
- > Energy savings from operating the washer bath at reduced temperature

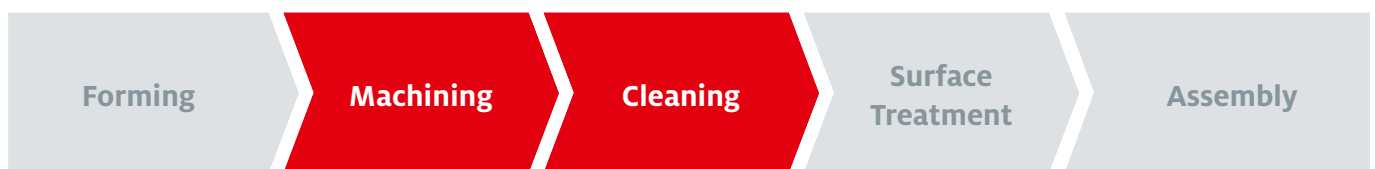
By utilizing this innovative process, cost savings of up to 40 % can be achieved, compared to a standard product. It is a differentiated technology that provides cleaner running machines when in operation and lower maintenance costs. Henkel has the strong capability to globally coordinate the roll out and transfer of the technology to your other locations.

Characteristics

- > Lubricant features pre-cleaning properties due to its combined formulation
- > Much better lubricity compared to other high value products = longer tool life possible
- > Allows recycling a parts cleaner bath into a lubricant bath
- > Lower operating temperature for the cleaning step is possible
- > The addition of a cleaner into our ultra-fine dispersed lubricant creates a metal cutting solution that provides excellent corrosion protection
- > 100 % recyclability of the “waste” cleaner bath
- > Can reduce up to 70 % product consumption, plus possible energy savings and a significant reduction of the waste disposal volumes
- > No routine addition of bactericide needed
- > Innovative technology can increase the lifetime of the lubricant bath

Value Chain

Henkel is present across the metal working value chain leveraging its strength in cleaners to complement our strong presence in water miscible lubricants.



The Tangible Advantages in Comparison

Standard Process

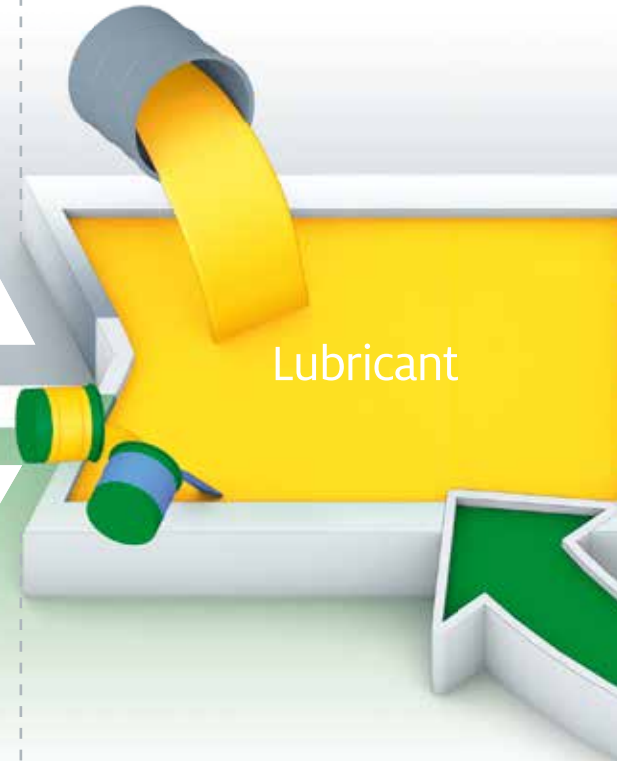
A typical standard process with a 100 m³ central coolant System

The BONDERITE dualCys Process

With the typical BONDERITE dualCys process, the customers recycle the cleaner bath into the lubricant bath. It enables up to 40 % cost savings as illustrated in the same example with a 100 m³ central system (also suitable for individual machines)

MACHINING

- > Initial Fill: 6–15 % lubricant in water
- > Top Up: 2,0 % emulsion
- > Dispose & Clean: Every 2–5 years



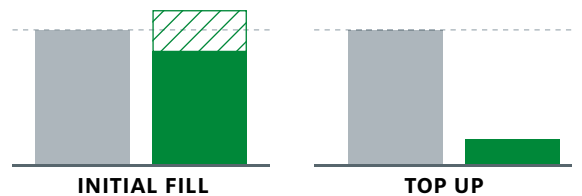
- > Initial Fill: 2–5 % lubricant + 2–5 % cleaner in water
- > Top Up: 0,4 % emulsion
- > Dispose & Clean: Every 2–5 years

MACHINING

Costs Across the Process

Based on a comparison with a typical standard process

- Standard process
- BONDERITE dualCys process



CLEANING

- > Initial Fill: 2% cleaner
- > Operating Temperature: 45°C/113°F
- > Dispose & Clean: Every month

POST STEP

100% Waste every month

High drag out
(200 liters/day)



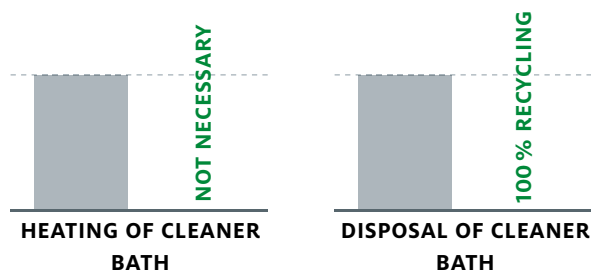
Low drag out
(32 liters/day)

100% Recycling

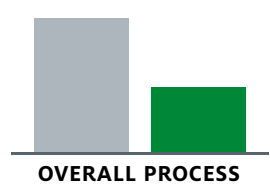
- > Initial Fill: 2% cleaner
- > Operating Temperature: 20 °C/68 °F
- > Dispose & Clean: 100% recycle to machining fluid

CLEANING

POST STEP

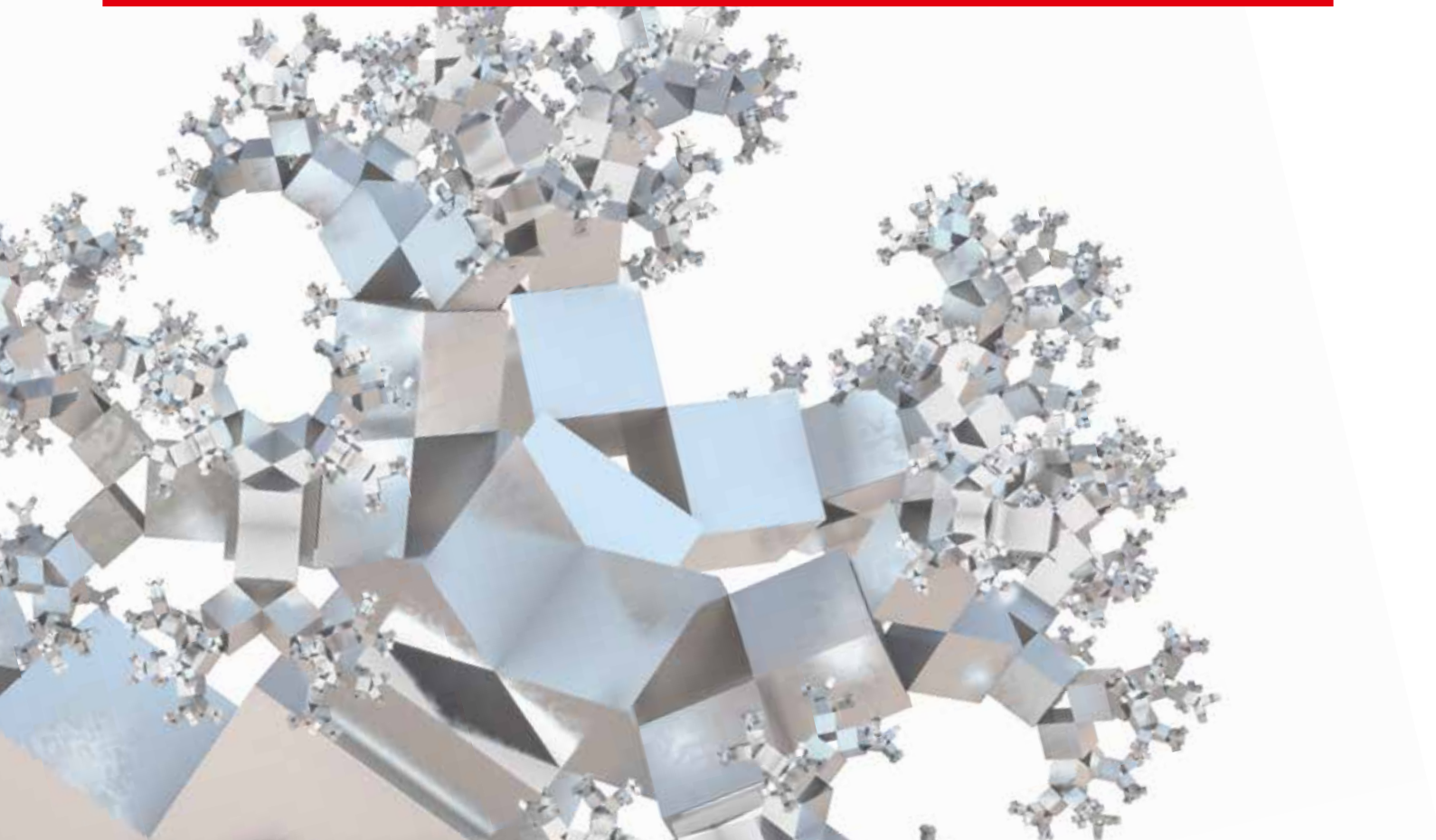


OVERALL SAVINGS UP TO 40%



BONDERITE dualCys is the Synergy between a Cleaner and a Lubricant

	BONDERITE L-MR 21466 (Cutting Fluid)	BONDERITE C-NE 10466 (Neutral Cleaner)
PRODUCTS	<ul style="list-style-type: none">> Fine dispersed coolant> High lubricity> Bactericide free> Boron free> Excellent corrosion protection	<ul style="list-style-type: none">> Water based neutral cleaner> High cleaning performance at low temperature> No foaming in most common water hardnesses> Excellent corrosion protection
APPLICATIONS	<ul style="list-style-type: none">> Suitable for most substrates, including steel, stainless, cast iron and aluminum> Stable and low foaming in the most common water sources> Works in combination with BONDERITE C-NE 10466	<ul style="list-style-type: none">> Can be applied at room temperature> Can be applied by spraying, high or low pressure or by dipping> Compatible with ferrous and non-ferrous alloys to provide in-process corrosion protection

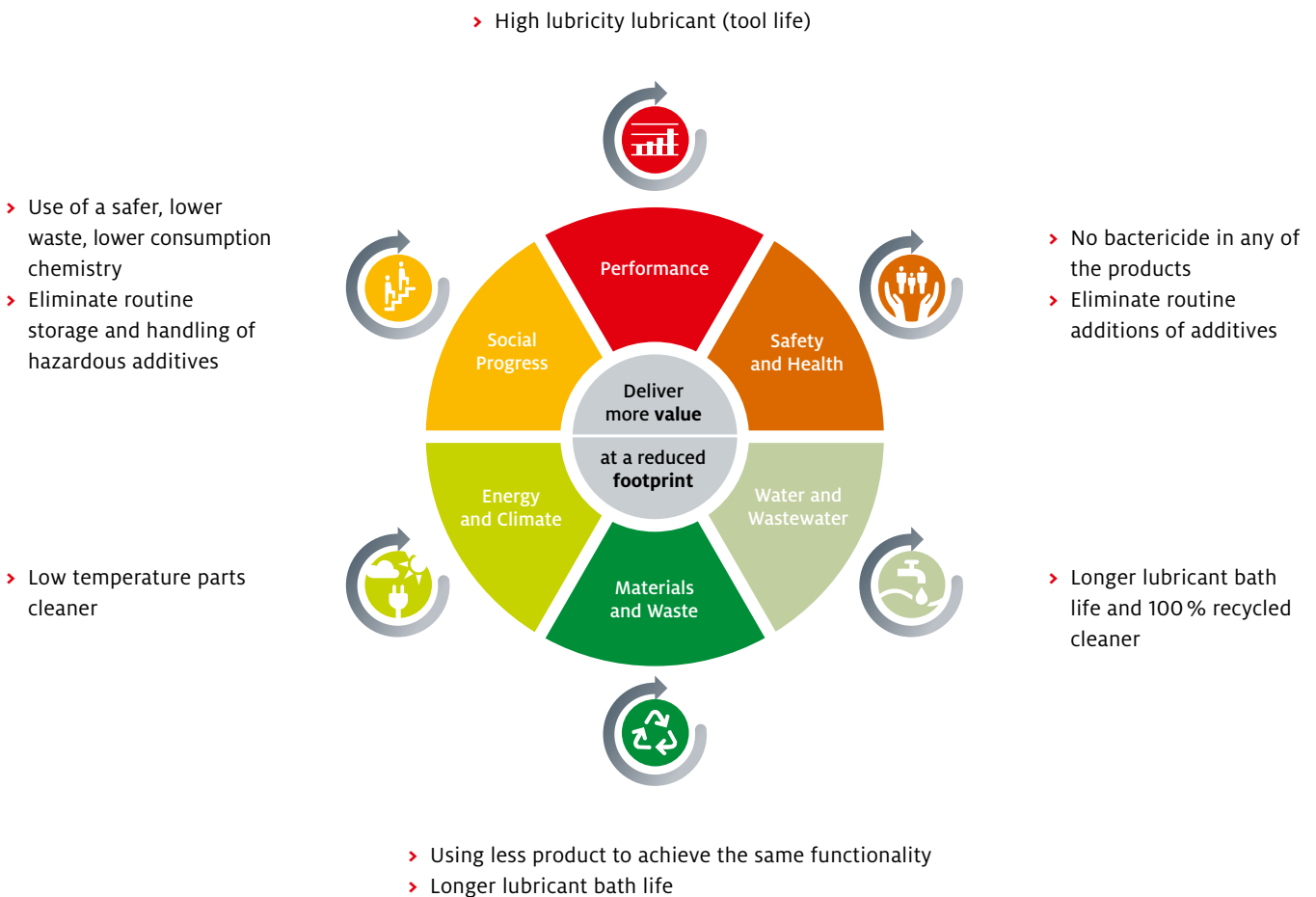


Sustainability – The Foundation of Henkel

Commitment to leadership in sustainability is one of our core corporate values. Through our sustainability strategy we contribute both to sustainable development and to our company’s economic success. As sustainability leaders, we aim to pioneer new solutions for sustainable development while continuing to shape our business responsibly and increase our economic success. This ambition encompasses all of our company’s activities – along the entire value chain.

Sustainability in the BONDERITE dualCys Process

Cost saving of up to 40% are possible by adopting our BONDERITE dualCys process. Reasons are a lower product-consumption, better bath- life-time, reduced waste and water consumption and plus possible energy savings and tool-life-time. Translated to our Henkel sustainability strategy, the following information can be given:



LOCTITE®
BONDERITE®
TECHNOMELT®
TEROSON®
AQUENCE®

AT5001600 01/2017

EUROPE

Germany

Henkel AG & Co. KGaA
(Headquarter)
Henkelstrasse 67
40589 Düsseldorf
Germany
Phone: +49.211.797.0

AMERICAS

U.S.A.

Henkel Corporation
32100 Stephenson Highway
Madison Heights,
Michigan 48071
United States
Phone: +1.248.583.9300

México

Henkel Mexicana, S.A. de C.V.
Boulevard Magnocentro
No. 8 Piso 2
Centro Urbano Interlomas
52760 Huixquilucan
Estado de México
Phone: +52.55.3300.3644

Brazil

Henkel Ltd.
Rua Karl Huller
136-Jd Canhema 09941-410
Diadema/Sao Paulo
Brazil
Phone: +55.11.3205.8955

ASIA-PACIFIC

China

Henkel (China) Co. Ltd.
No. 928 Zhang Heng Road
Pu Dong
201203 Shanghai
China
Phone: +86.21.2891.8000

Japan

Henkel Japan Ltd.
Asia Pacific Technical Center
27-7, Shin Isogo-cho
Isogo-ku, Yokohama 235-0017
Japan
Phone: +81.45.758.1800

AFRICA & MIDDLE EAST

U.A.E.

Henkel Jebel Ali Fzco.
GCC Block F, 2nd Floor
Dubai Silicon Oasis Main Office
P.O. Box No. 341044
Dubai U.A.E.
Phone: +971.4.389.3346

www.henkel-adhesives.com/dualcys

The data contained herein are intended as reference only. Please contact Henkel Technical Support Group for assistance and recommendation on specifications for these products.

Except as otherwise noted, all marks used above in this printed material are trademarks and/or registered trademarks of Henkel and/or its affiliates in the US, Germany, and elsewhere. © Henkel AG & Co. KGaA, 2015