



MACHINING & CLEANING

Martin Desinger

Metal Solutions along the entire Value Chain

Line Guard

1. Casting / Forging

2. Machining

3. Stamping / Forming

4. Cleaning

5. Surface Treatment



Sustainability... which

=



Wastewater Treatment

Henkel is present across the metal working value chain leveraging its strength in Cleaners to extend its presence into the whole product portfolio

... decrease cost!

Sustainability, Essential Company Target

Henkel

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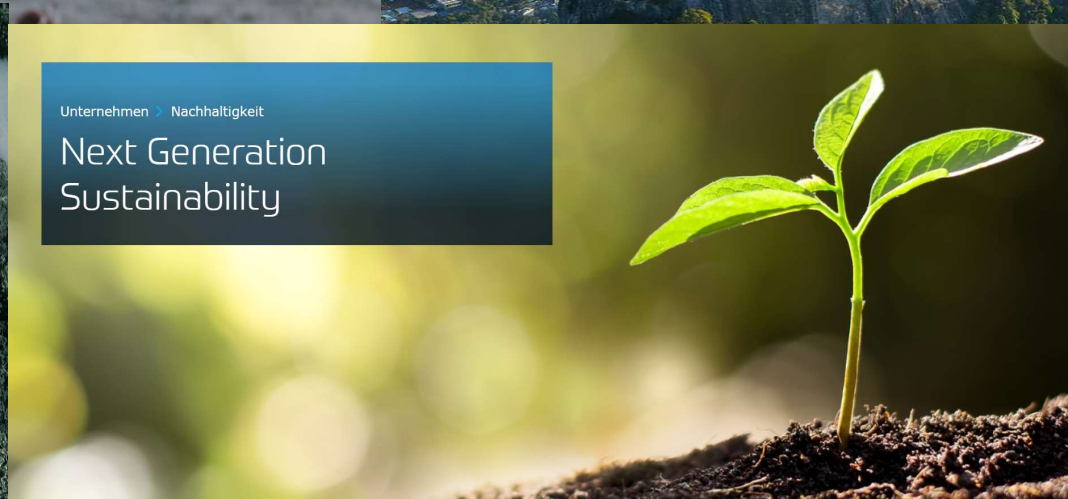
Sustainability

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.

Our sustainability strategy

Tripling the value we create through our business activities in relation to our environmental footprint – that is our goal for 2030.

Sustainability, Also Essential For Our Customers



How to create a better, more sustainable & cost saving Production-Process

Let's start thinking:

Actual Situation

- You need a lubricant
- You need a cleaner
- You need corrosion protection
- You have diverse supplier
- You have no matching Products



How to create a better, more sustainable & cost saving Production-Process

What do you need.....

- Matching Products
- New innovative ideas
- Sustainable Process
- Less Co2 Footprint
- Less Consumption (Water/Product/Energy)
- Less Waste
- Less Cost



How to create a better, more sustainable & cost saving Production-Process

What could Henkel do???

Our thoughts....

- We are strong in developing cleaner
- Watermiscible products are cleaner based
- More Surfactants, Less oil per product
- If all is cleaner based.....
- It must be recyclable one into the other..
- Cleaner must be run at low temperature



How to create a better, more sustainable & cost saving Production-Process

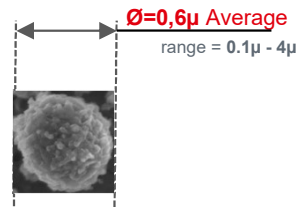
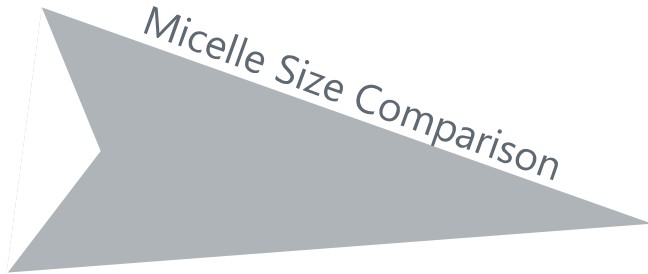
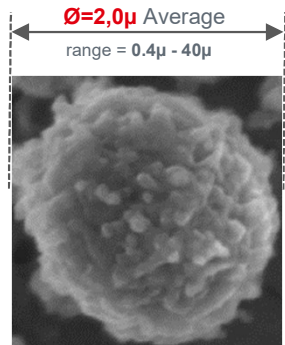
What could Henkel do???

Our ideas

- Surfactants which also lubricating
 - Leads into less consumption, save resources ,less transports and cleaner machines/parts/surroundings
- Cleaner with same basis is, when dirty , the thinner Version of the Emulsion-bath, so, you could recycle the cleaner instead of waste the bath all x? weeks...
 - Leads into less waste, less water, less product, less energy consumption (low temperature cleaning)
- This reduce the CO2 Footprint, change nothing in the production process and save cost



The BONDERITE L-MR - Speciality



competitor-Emulsion (5%)

Up to **50%** less
Consumption with our
integrated
Cleaner/Lube-System



BONDERITE L-MR 21718 (6%)

MACHINING & CLEANING

BONDERITE PROCESS: SUSTAINABILITY VISUALIZED

Standard Prozess



BONDERITE Process



MACHINING AND CLEANING

BONDERITE PROCESS: SUSTAINABILITY VISUALIZED

Standard Process

Coarsely dispersed Emulsion

- High cleaner bath contamination
- Unmatched Product Process
- Waste Cleaner Bath all x? Weeks
- High Co2 Footprint
- Cost intensive



Bonderite Process

up to 50% less drag out

- ✓ Low cleaner bath contamination
- ✓ Matching Product Process
- ✓ Bonderite Cleaner bath could be recycled
- ✓ Sustainable (lower Co2 Footprint)
- ✓ Cost saving



Sustainability as Innovation Driver

Value Calculator

*We increase your sustainability
&
We Deliver more Value for you*

*We increase your sustainability
&
We Deliver more Value for you*

Data to fill in		BONDERITE dualCys Process		Traditional Process	
General	Name of Production Line	Test 123			
	Working days per year / days per week / days per week	days	365	7,0	7,0
	How many working shifts per day		3	1,0	1,0
	Energy cost	€/kwh	0,12	0,12	0,12
	Cold Water temperature	°C	10	10,00	10,00
	Waste water disposal costs	€/m3	120	120	120
Products	Lubricant		Bonderite L-MR 21719	Current	
	Lubricant estimated price	Eur/Kg	6,50	4,90	
	Cleaner		Bonderite C-NE 10640	Current	
Cleaner estimated price	Eur/Kg	4,60	3,90		
Lubricant System	Base data	Volume of the system (m3)	m3	45	45
	Water top up per day (%)	%	12,0%	12,0%	12,0%
	Recycled		Yes	No	No
	Life time of system	Year	2,0	1,0	1,0
	First fill	Lubricant addition	%	6,0%	6,0%
		Cleaner addition	%	0,0%	0,0%
	Top up	Lubricant addition	%	0,00%	1,50%
		Cleaner addition	%	0,0%	0,0%
	Biocide	Price in	€/Kg	16,00	16,00
		Kg of biocide added	Year	0	0
Cleaner System	Base data	Volume of the system (m3)	m3	4	4
	Water top up per day (%)	%	25,0%	25,0%	
	Operating Temperature (we calculate with the delta T)	°C	30	55	
	Life time of system	Weeks	8,0	5,0	
First fill	Cleaner addition (%)	%	1,5%	1,5%	
	Top up	Cleaner addition (%)	%	1,00%	1,00%
Tool Costs	Tool costs per tool (look for one special or expensive to produced parts per year	€	0,1	0,1	
	Tool-Life-time - how many parts produced parts per year		1	1	
	Total		0	0	
Other cost	Manpower Exchange Cost per exchange Lube		2.500 €	1.250	2.500



	BONDERITE	Traditional
Material Cost / a	129.552 €	174.362 €
Disposal cost / a	1.795 €	10.392 €
Energy cost / a	0 €	36.966 €
Tool & other cost / a	17.500 €	28.500 €
Sum	148.847 €	250.219 €
Bonderite Savings		-101.372 €
		-41%



Cost Comparison

Material Cost / a | Disposal cost / a | Energy cost / a | Tool & other cost / a | Sum

Legend: ■ BONDERITE ■ Traditional

LUBRICANT SYSTEM

	BONDERITE L-MR Process	Traditional Process	
Initial Fill	Lubricant / Coolant (Kg)	2.700	2.700
	Cleaner (Kg)	-	-
	Lubricant / Coolant (Euro)	17.550 €	13.230 €
	Cleaner (Euro)	0 €	0 €
	Initial Fill (Euro)	17.550 €	13.230 €
Bath life time	2 years	1 years	
Initial Fill Impact per year	8.775 €	13.230 €	
Replenishing	Drag out %	0,8%	1,5%
	Lubricant / Coolant (Kg)	15768	29.595
	Cleaner (Kg) (when 2 component system)	0	0
	Lubricant / Coolant (Euro)	102.452 €	144.869 €

CLEANER SYSTEM

	BONDERITE L-MR Process	Traditional Process	
Initial Fill	Cleaner (Kg)	60	60
	Cleaner (Euro)	276 €	234 €
Bath life time	8 weeks	5 weeks	
Initial Fill Cost Impact per year	1.794 €	2.434 €	
Replenishing			



BONDERITE C-NE

Core-Range

- C-NE 10640** Allrounder also useful as *Systemcleaner* in Lubes **& recyclable in L-MR's**
- C-NE 5088 Best oil removing spray cleaner (50-80°C)
- C-NE 3300 Best demulsifying cleaner at low temperatures also biostable
- C-NE 10330 Special cleaner to remove MQL's (Minimum Quantity Lube)
- C-NE 270 Best nonferrous and Mg-alloy cleaner with lightening properties
- C-NE 5064 Best before hardening & high shiny finishing
- C-NE 400 Best corrosion protection

All Products are Bactericide- & Boron-free

BONDERITE L-MR

Core-Range

L-MR 10601	Fully Synthetic with lubricity (low pH)	ST/GG/GGG/AL
L-MR 11492	Fully Synthetic Grinding Fluid	ST/GG/GGG/(AL)/Co-alloys
L-MR 21718	Allrounder Boron & DCHA free Hard Water	GG/GGG/ST/(AL)
L-MR 21165	Non-Ferrous Specialist	Brass/Copper/AL/Mg/Zn
L-MR 21909	Aviation approvals (100% VOC free)	AL / Titanium

All Products are Bactericide- & Boron-free

AL = Aluminium/ST=Steel/SST=Stainless Steel/GG=Grey cast iron/GGG =Special Grey cast iron/Mg=Magnesium/Zn=zinc-coated/Co=Cobalt



BONDERITE L-FM

Core-Range

L-FM L 67 Evaporating oils

L-FM 7160 Emulsion (Oil-free/Synthetic Emulsion)

L-FM 30298EV Emulsion, Sulfur Containing

L-MR 210 Ester-Oil

L-AD 233-2 Ester Oil High Sulfur containing

Q & A

Don't hesitate to ask questions...



BONDERITE[®]

LESS WASTE,
LESS COST,
BETTER PRODUCTIVITY

THANK YOU

