

# CARBON MITIGATION FROM A PELLET PLANT PERSPECTIVE

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**World Sustainable Energy Days**  
28 Feb. - 3 March 2023, Wels/Austria



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swiss made lubricants

# Who is Bathan AG ?

- Swiss manufacturer
- High-performance Lubricants
- Global leader in ceramic lubricants
- The performance of our customers in focus
- Represented in Europe, Americas and Asia
- Full Service provider for the pellet industry





# Why Talk about Sustainability ?

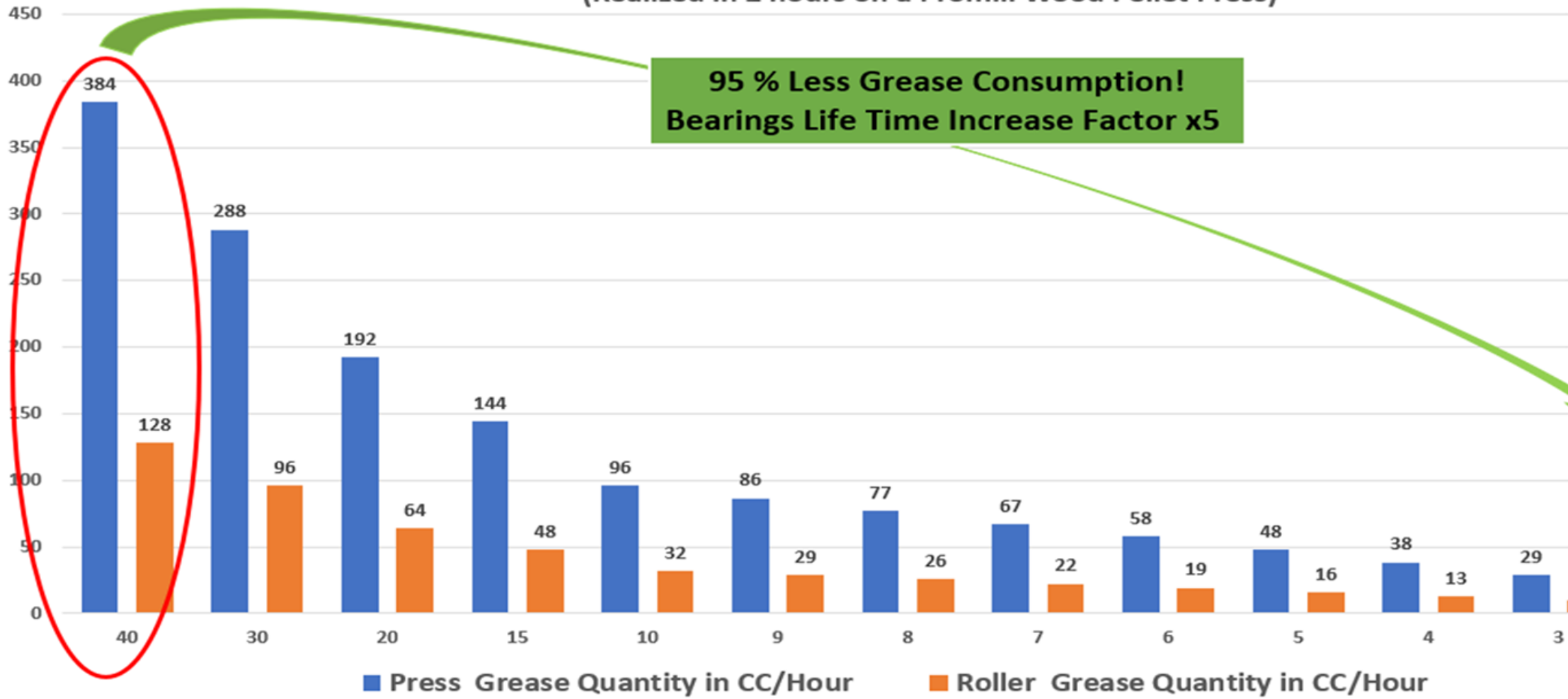


- >11 tons of Ceramic Grease in 2021 (substitutes 220 tons regular grease)
- 900 hours of Service per year
- 5+ successful consulting projects every year
- Speaker at renewable energy conferences since 2009
- 20+ Articles in industry specific media



# Pellet Mill - Effects of lubrication with ceramic grease

Hourly Grease Quantity Reduction Monitored by number of progressive divider pulses  
(Realized in 2 hours on a Promill Wood Pellet Press)

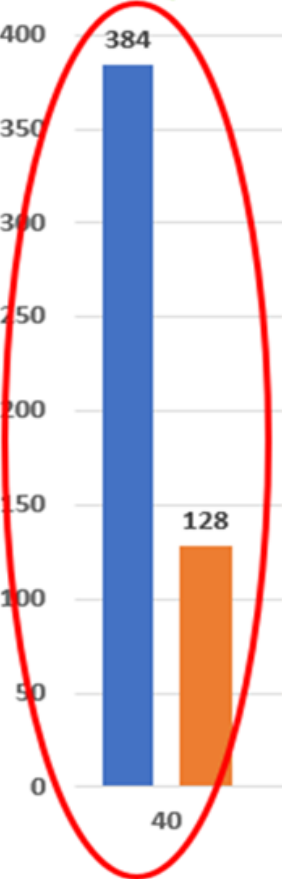


**95 % Less Grease Consumption!**  
**Bearings Life Time Increase Factor x5**



**BATHAN®**  
swiss made lubricants

**KF 3 / 40 M**  
**K PF 2 S -15**  
High  
Performance  
Ceramic  
Grease



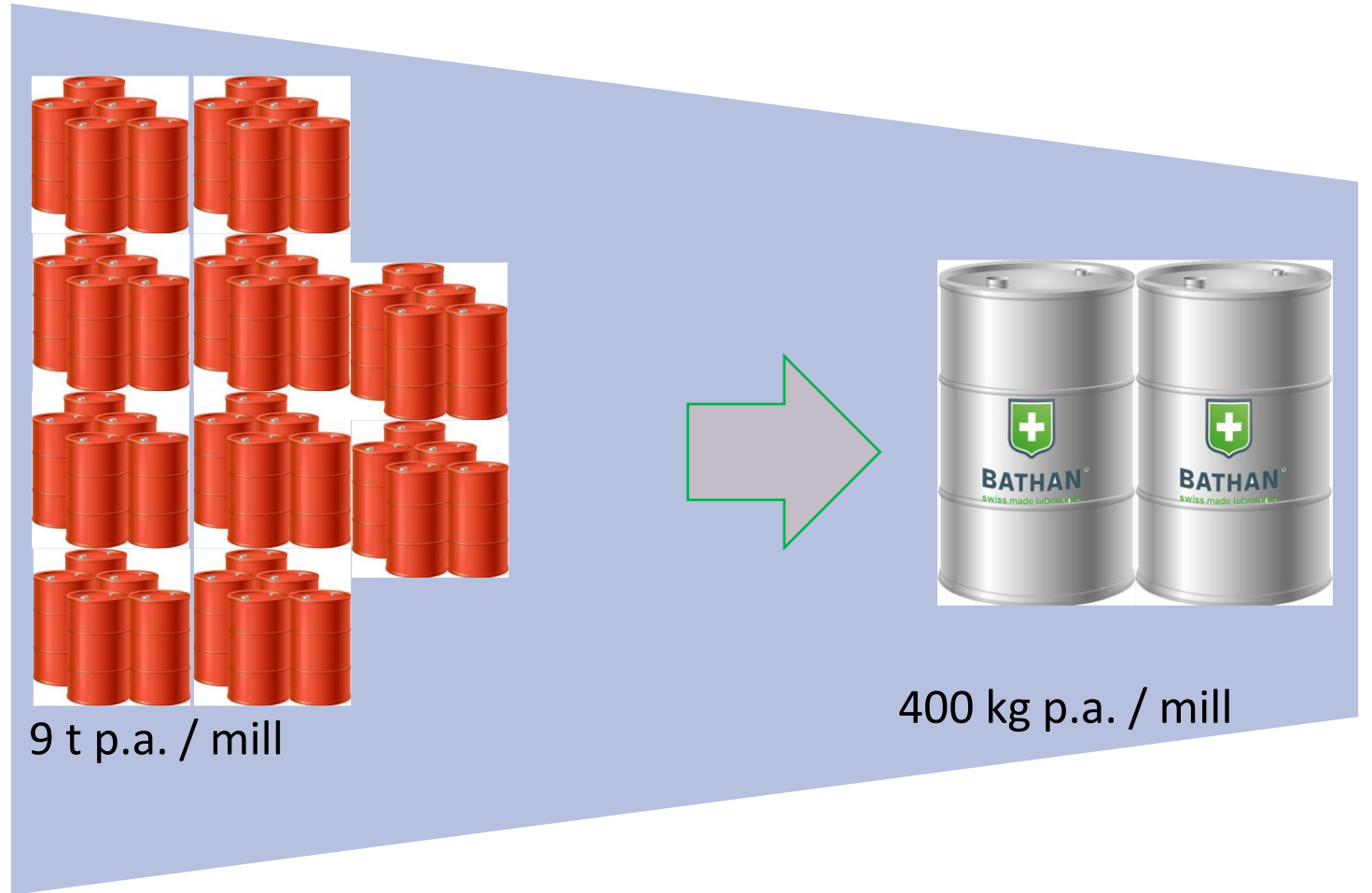
# Carbon Footprint Improvements

## Focus on Waste Management:

With 95% lower consumption due to high-performance grease, a company with 120.000 t annual pellet production **saves 45 drums** or 8,100 kg of regular grease.

= 1.575 kg CO<sub>2</sub>\*

\*) Life Cycle Analysis by rensch-packaging.com



# Total Carbon - Cost Comparison

	Regular Grease	BATHAN Grease
Waste Drums	48	2,5
Grease Costs	48 x 1000€ = 48.000€	2,5 x 19.200€ = 48.000€
CO <sub>2</sub> Emissions		
Grease	5kg CO <sub>2e</sub> /kg = 43,2 t	2,25 t CO <sub>2e</sub> /kg
Drums	35 kg CO <sub>2</sub> /drum = 1,68 t	87,5 kg
<b>CO<sub>2</sub> Comparison</b>	<b>44,88 t</b>	<b>2,3375 t</b>
CO <sub>2</sub> Certificate Equiv.	Future Price 90€ = 4.039€	210,38€

## Assumptions:

4 pelletizers with 5 t/hour production  
24/24 hour production  
5 days / week  
50 weeks / year  
= 120.000 t / year. production

Initially 48 x 180 Kg drums / year

95% lower grease consumption with BATHAN ceramic grease.

Grease Carbon Emissions: NESTE; Drum Carbon Emissions: Rensch Packaging; Carbon Pricing: EMBER



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# What impact on the TCO? (Total Cost of Ownership)

Annual Cost Saving - For 6 Promill Evolution Presses - Wood Pellets	Cost Saving
Replacement Grease Molydal Luzol HPCX 450 by Bathan KF 3 / 40 M	
95% reduction in grease volumes consumed	35 235 €
Bearing life extended > 5,000 hours	90 000 €
Reduced maintenance costs	9 600 €
Reduce/Eliminate Unplanned Production Stoppages	36 000 €
Reduced logistics costs	6 400 €
<b>Total reduction in operating costs</b>	<b>177 235 €</b>
<b>Real Reduction of your Carbon Footprint</b>	<b>58,7 T</b>

4 Drums of 180 Kg/Pallet weight 800 Kg - Delivery on 500 kms => 200 € / Pallet

New Roller Cost = 3 000€ vs Retrofit Roller = 1 500€ - Life extension X 5

New Roller change: 2 hours x 2 - People Hourly rate 80€

Cost ton of wood pellets = 120€

## Assumptions:

6 pelletizers with 5 t/hour production

24/24 hours production

7 days / week

350 days / year

50 400 Production hours / year

252.000 t / year production

Initially 66 x 180 Kg drums / year

95% lower grease consumption with BATHAN ceramic grease.



# Thank you!

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