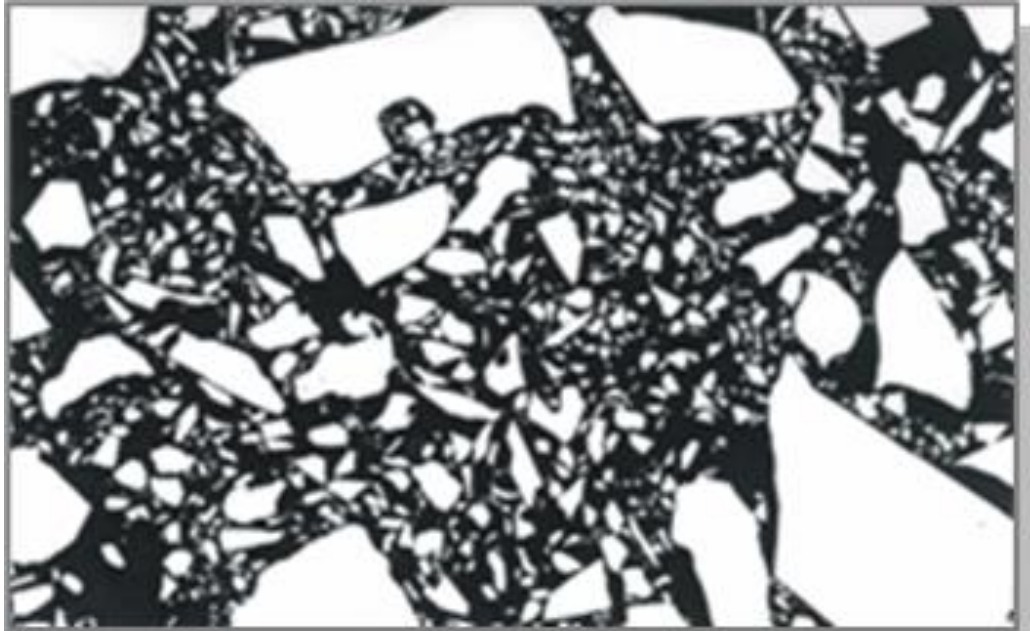


Welcome to the Lutze Group

**QUALITY MAKES THE DIFFERENCE!**

# Extremely wear-resistant coating



# • Silicon Carbide SiC Polymer Casting Process

- To blend
  - Relatively simple mixing process of the silicon carbide with the resin in an 80:20 ratio under vacuum.
  - Cold process
- Casting process
  - The compound is poured into the molds under vacuum conditions.
  - The cast compound is “dry” within a few hours and completely hardened after 48 hours
- Hand application
  - The compound can be applied manually or by means of squirt.
  - Build up in layers until the desired thickness is reached.
- Machining operations
  - The hardened compound can be machined or reworked with special tools.
- Characteristics
  - Extremely wear-resistant and high chemical resistance.
  - Extremely hard and brittle, therefore not suitable for high impact applications.
  - Can withstand much higher temperatures than rubber liners.

# Physical properties and certifications

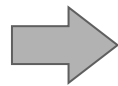
- Can be used pH range 0-14
- 3 enemies! ☹️ aqua regia, formic acid and phosphoric acid in high concentrations
- Can be used up to 210 degrees Celsius
- Food certificate
- ATEX certification for applications in pumps and fans

# Cold vulcanization manufacturing process

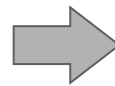
Metal share < 1.5%



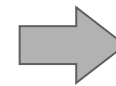
**Mixing under vacuum**



**Pour under Vacuum**



**Cured**



**Component ready**

# Applications



# Applications



# Chemical attack

- Pump housing on the next slide is made of cast iron. Was affected by low pH, lifetime < 1.5 years
- Made chemically resistant and wear-resistant by applying a layer of 2-3 mm SiC casting polymer, applicable pH range from 0-14
- The pump house was in very poor condition and ready for the scrap bin
- Made usable again by Lutze Process



# Applications



# Chemical attack

- The cast iron pump parts on the next slide were affected by acidification of the medium (clean water).
- The OEM did not have an acceptable solution (price + delivery time)
- Lutze Process has made the affected parts chemically resistant and wear-resistant in 4 weeks by applying 2-3 mm SiC casting polymer.

# Chemically resistant and abrasion resistant



# Anti-stick coating



# Alternative to alloys

Project with pump manufacturer, guide ring made wear-resistant with VE220 instead of Hardox.

Availability and prices of Hardox are under heavy pressure.

Guide ring cost-effectively fitted with cast VE220 wear ring in 3 weeks



# Smart solutions

## Casus:

Inlet piece made of Ni-hard. Poorly available, difficult to cast and subject to severe price fluctuations.

## Solution:

Cast from GG25, machine to desired dimensions and contour, apply 5 mm VE220. Completed within 12 weeks.



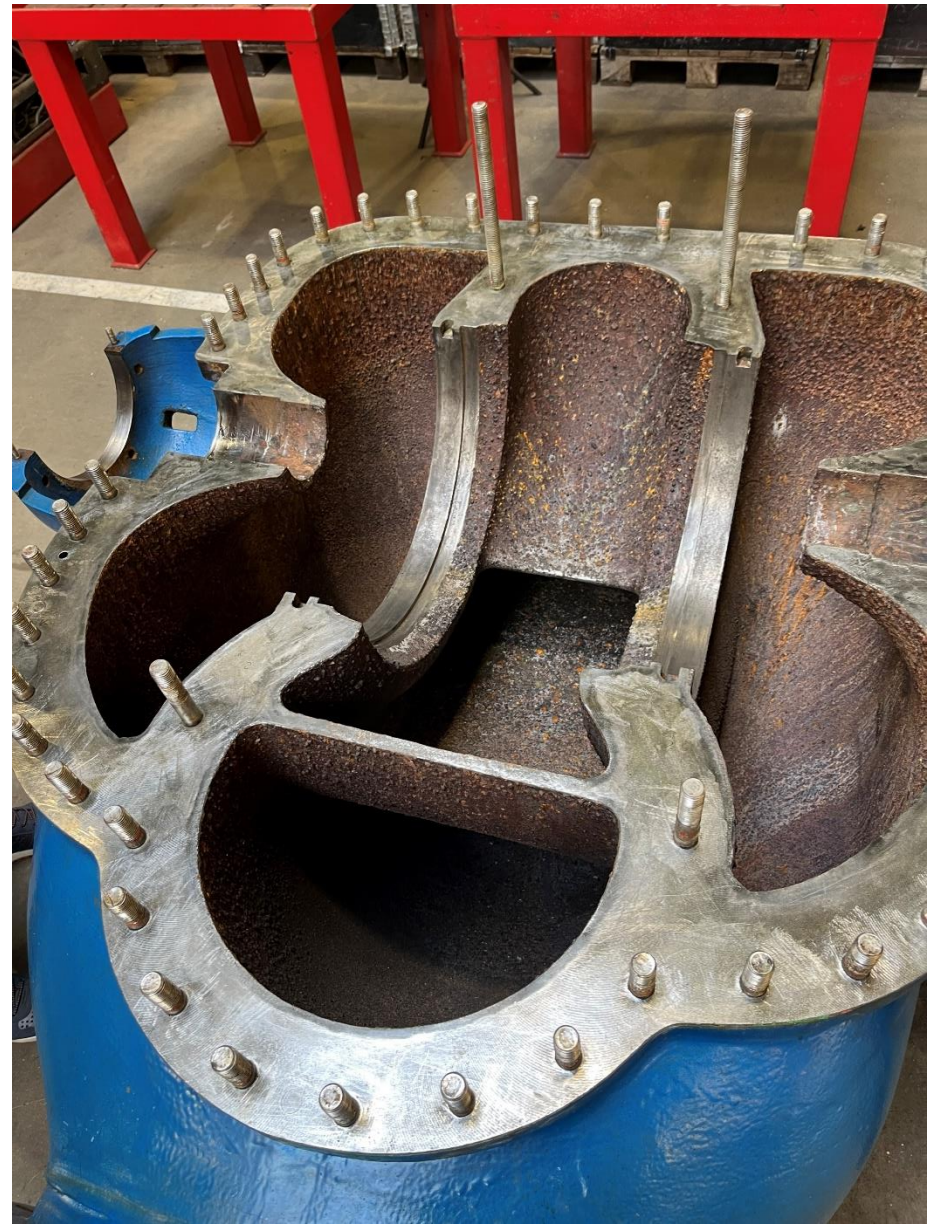


- Impeller of pump from sewage pumping station equipped with VE220 wear ring instead of stainless steel 316 or bronze.
- An additional advantage is that due to the relatively rough surface, wipes are easily ground into fibers, resulting in fewer blockages.



# Repairs

- Using VE220, casting holes and other casting defects in metal (pump) housings can also be repaired.
- Basically, every metal is suitable for an upgrade with SiC casting polymer.





# Compare material properties

Hardness Brinell	200	300	400	500	600	700	800	900
<b>Steels</b>	1.4500 Duplex	1.4464 Duplex	A49	A51				
<b>Corrosion properties</b>		good						Not good
<b>Erosion properties</b>		Not good						good
<b>Polymer Casting</b>				good				
<b>Moh scale hardness</b>	4	5	6	7		8		9
<b>Minerals</b>	fluorspar	Iron Ore	Magnetite	Quarz		Topas		Diamond

# Compare material properties

Material	Warman A49 Metal	KSB Noridur DAS Metal	Polymer Casting VE220
Density (t/m <sup>3</sup> )	7,58	7,75	2,5
Hardness (BHN)	320	260	920
Tensile Bending Strength (N/mm <sup>2</sup> )	>400	>500	80
pH limit at 70°C	3,5	2,5	0
Max. Chloride & Fluoride (ppm)	40000 2000	50000 3000	No Limit

# 3D Modelling software





# Wat can we do for you?

- Quality makes the Difference!
- Made in Germany
- Durable
- Wear and tear can be easily repaired
- No Waste
- Reuse of parts which are ready to be scrapped is possible

# No Waste!!

