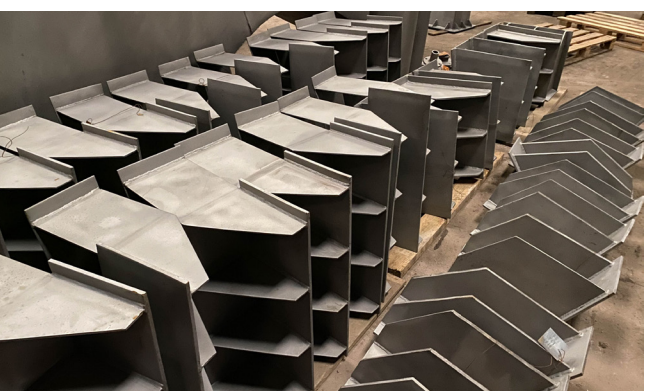


# Delivering improved cleaning — quality, velocity, & cost efficiency



## **Gardacid® P4354 — Clean Customer Benefits**

- ⊕ 100% elimination of laser scale related rejects
- ⊕ Removed entire vibratory finishing process step
- ⊕ Significant savings in chemical costs

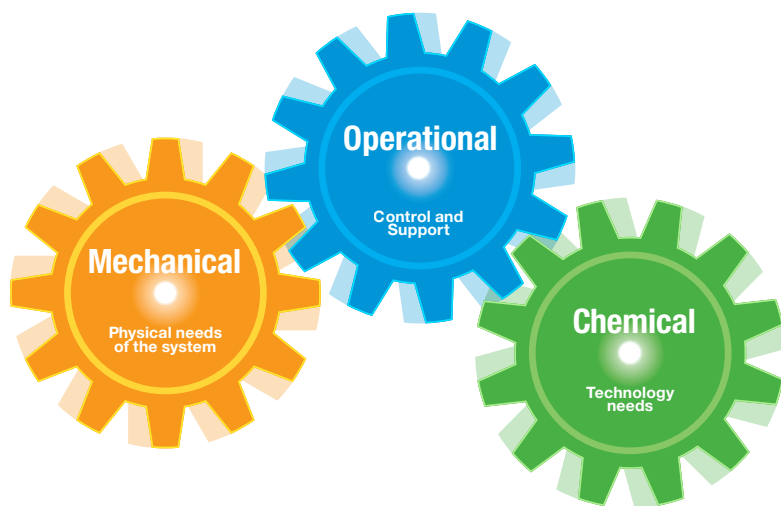
**■ BASF**  
We create chemistry

**Chemetall**  
expect more ⊕

# Customer appreciates Chemetall's expert clean up

- + A major heavy equipment manufacturer and long-term customer needed assistance.
- + Reimagining an established Chemetall product into a new and more effective pickle process successfully met the customer's quality requirements.
- + Long-term relationships are maintained by this foundation of trust.

**The innovative pickle process, GardAcid P4354, delivered the solution.**



## Applying the MOC process

We analyze all challenges using our proprietary integrated solution methodology (MOC process), a comprehensive technique to address all input and output issues associated with a chemical application or process.

**Incoming material (with laser scale)**



**After cleaning with GardAcid P4354**



Laser scale removal on 1/2 inch steel and thicker

**Incoming material (welded)**



Weld cleaning

**After cleaning with GardAcid P4354**



**After cleaning with GardAcid P4354**



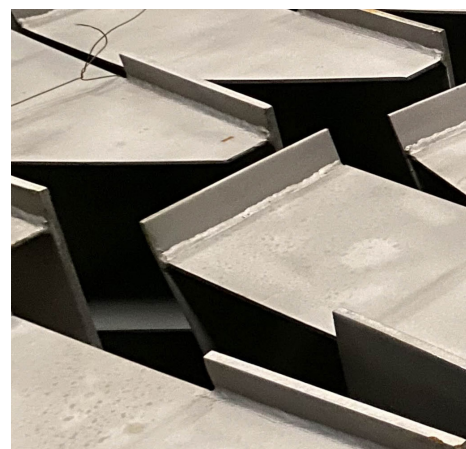
## Tests determined comparison of Gardacid P4477 vs. Gardacid P4354.

	Current Process	New Process
	GardAcid P4477	GardAcid P4354
<b>Concentration*</b>	1.8%	2.5%
<b>Temperature</b>	95 °F	85 °F
<b>PSI</b>	12	12

### Test performed utilized:

- + 1.25" thick plate steel
- + 1/4" steel parts
- + Steel tubing
- + 1/4" aluminum plate with heavy oxide

\*Higher concentration of lower cost single chemical; eliminating second chemical completely.







Rethinking processes using current technology to support creative continuous improvement is a defining skill for which Chemetall's experts are renowned.

## Quality

Complete removal of laser scale and greatly improved weld cleaning

## Velocity

Reduced number of processes required for cleaning of parts

## Cost Efficiency

\$20K in chemical spend savings due to reduction in chemical usage

In a competitive market, improving quality and productivity while reducing the cost of core manufacturing processes is critical to long-term success.

### 100% elimination of laser scale related rejects

Cost savings	\$100,000
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### Removed entire vibratory finishing process step

Cost savings	\$75,000
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### Significant savings in chemical costs

Cost savings	\$20,000
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### Total Cost Impact

\$195,000
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## Commitment Beyond Chemistry

### Gardacid® P4354 Creates Value

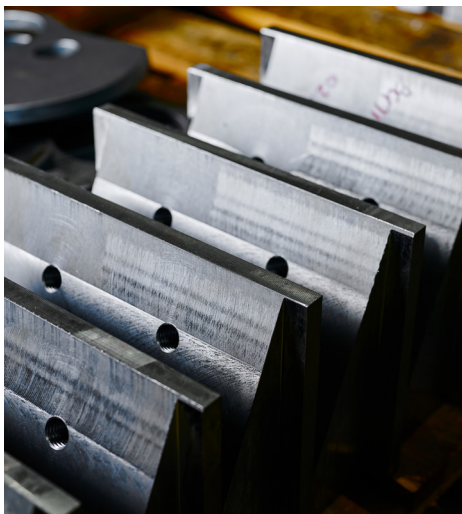
Eliminated laser scale on ½" thick material

Effectively cleans welds on thick gauge material

Reduction of reject rates through outgassing

Energy saving low temperature

Increase safety and throughput



## Reproducible Quality with Precision Pretreatment

### expect more — expertise



### expect more — efficiency



### expect more — innovation



### expect more — collaboration



### expect more — discovery



### expect more — support



## Cut it. Clean it. Coat it. Control it. Conserve it.

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