



Eco Pickled Surface

This environmentally-friendly flat roll product's clean, rust-resistant surface delivers savings for steel users. EPS replaces acid-pickled strip and offers:

- outstanding paint corrosion and adhesion performance
- a dry surface that eliminates the problems of oil
- reductions in mill surface imperfections
- a clean, uniform, lustrous finish
- consistent surface texture

EPS removes all iron oxides from hot roll strip, producing a clean, consistent surface. The EPS product is superior to hot roll black, SCS, HRPO and pickled dry.




Cost Savings for Manufacturers

EPS processing delivers a pickled surface that makes manufacturers more productive.

The processing doesn't affect steel chemistry, so you'll purchase the same grades and specs you always have. But after EPS processing, that steel will have a uniform surface and **no surface contaminants** – no mill scale, no rust, no oil. You'll even see less of the gray 'smut' residue that acid pickling leaves behind.

That means nothing comes between your EPS-processed steel and the welding arc, the stamping die, or the laser beam. **There are numerous, proven advantages to using steel this clean and oil-free:**


PAINTING

- 
- excellent anti-corrosion performance and paint adhesion
 - reduce paint pre-treatment temperature
 - little or no wipedown for fabricators
 - can 'lean out' paint pretreatment with no loss of corrosion test results
 - change pretreatment wash solutions less often
 - superior paint finish, courtesy of more uniform surface texture (lower Rz)
 - no oil to pollute paint bath

STAMPING

- lubricants get directly to the steel (unimpeded by an oil film barrier) so they can perform optimally
- tension leveled shape reduces springback
- no surface contaminants to foul tooling

ROLLFORMING AND TUBE PRODUCTION

- 
- roll tooling slips less when there's no oil film
 - great shape + clean surface = better seam weld
 - no need to strip off oil or sandblast finished parts or tubes
 - finished tubes and parts much less susceptible to rusting


SURFACE IMPROVEMENT AND MATERIAL RECOVERY

- reduces common mill imperfections – roll marks, pitting, silicon streaks – leaving a visibly improved surface
- tension leveling greatly reduces bow, edge wave, oil canning and even minor coil breaks
- completely removes surface rust, restoring the value of rusted coils . . . and they will remain rust-resistant !


EPS® is a registered trademark of The Material Works, Ltd.

Castrip® is a registered trademark of Castrip LLC.

WELDING

- 
- virtually no dangerous welding fumes, since there's no oil film to burn off
 - stronger welds, with more uniform bead
 - no weld site preparation (wiping, grinding) needed

LASER & PLASMA CUTTING

- 
- clean, oil-free surface allows faster cutting speeds and improved cut quality
 - no oil mist to fog laser lens and foul exhaust filters
 - since there's no oil, sheets don't stick together when destacking. This eliminates a common cause of 'ghost shift' shutdowns

MATERIAL MANAGEMENT

- EPS processing of Nucor's Castrip® product produces a clean, oil-free strip with excellent surface that can replace cold roll
- consolidate orders for hot roll black, HRPO and pickled dry into a single order for EPS-processed strip
- no rust removal, rust rejects, or rust claims. Coils or sheets in inventory will be rust free. Your fabricated parts, either in-process or on the shelf, will stay rust free

TMW's EPS NO RUST Warranty

EPS-processed material – whether dry or with oil applied – is **GUARANTEED** to remain free of rust longer than traditional acid-pickled steel with a medium coat of oil, when handled in the same manner.

We are so confident of the rust resistance of EPS-processed material, we offer the following warranty for our EPS processing:

EPS-processed material – whether dry or oil-applied – is warranted against rust formation on the sheet or coil surface for 180 days from the date of processing for issues reported within the same period. It is not warranted against rust resulting from improper handling or storage practices that bring the surface into direct contact with moisture including rain, temperature change condensation or fingerprints.

How The EPS Process Works

At the core of the patented EPS process is a technology called **Slurry Blasting**. The slurry - a mixture of ordinary water and angular steel grit - is propelled onto the strip in a uniform stream that removes surface scale without removing the base steel. The extent of oxide removal is at least as thorough as acid pickling; however, slurry blasting also conditions the surface so it is cosmetically uniform and absent acid pickling's chloride residues that can accelerate rusting.

Slurry blasting is far superior to dry shot blasting for removing oxides from strip:

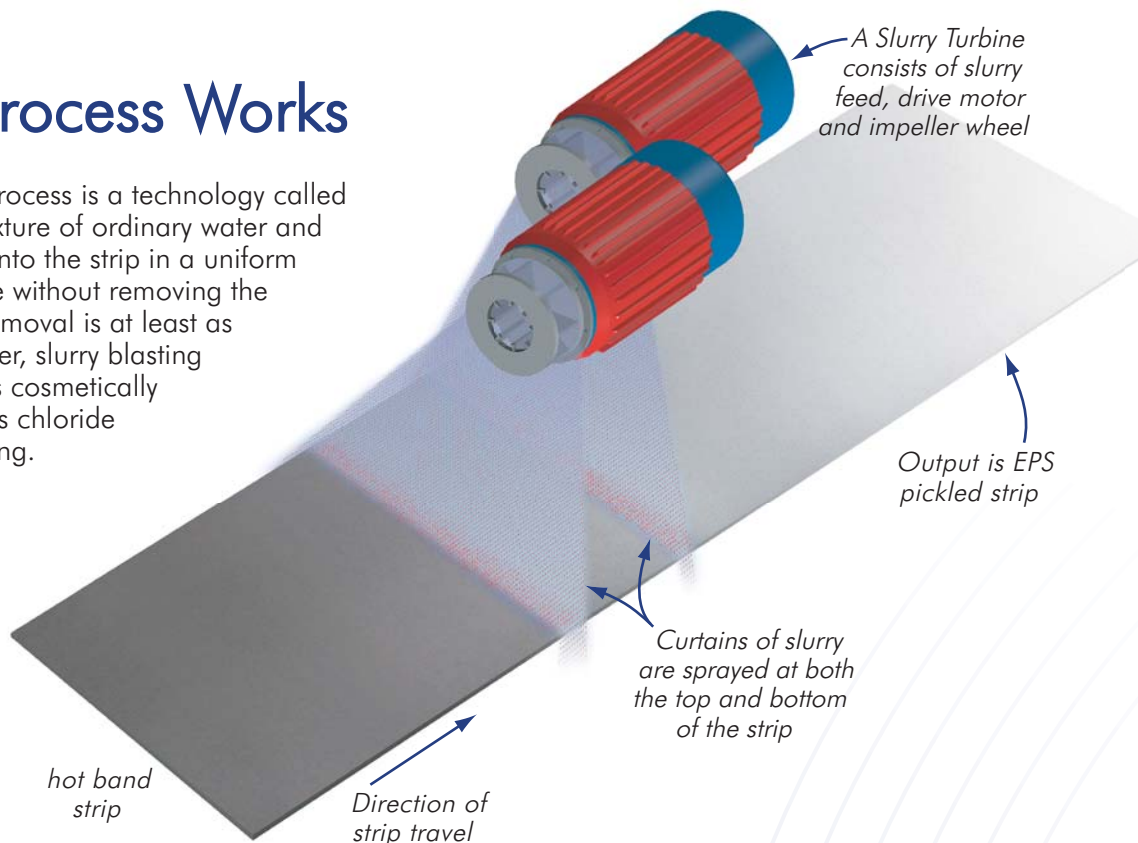
1. The angular steel grit is propelled onto the strip's surface at slower speed.
2. Water in the slurry not only cleans the grit, it 'power washes' the strip surface, leaving it very clean.

This prevents grit and removed contaminants from getting embedded in the blasted surface. It's why EPS processing always beats acid pickling, while shot blasting does not.

EPS processing of coils shape corrects steel through tension leveling. Tremendous pulling forces are generated between the entry-side leveler and the exit-side recoiler to reduce bow, edge wave - even minor coil breaks.

A Better Base For Downstream Processes

Processes like galvanizing, coil coating and cold rolling benefit from the clean, uniform surface of EPS-processed steel. First, EPS mitigates common surface defects like silicon streaks, minor roll marks and pitting, presenting a more uniform surface. Second, certain 'pre-process' steps, like the acid bath to remove HRPO's oil prior to batch galvanizing, are no longer needed.



The Brilliant Look Of Quality

These samples are from the same coil of hot band. The one on the left is untreated, while that on the right was EPS-processed.



Untreated Hot Band



EPS-Processed

The EPS sample shows not only the removal of all mill scale, but a consistent, uniform surface that resists rusting and provides a better base for surface finishes than either HRPO or pickled dry.

"What attracted us to EPS product was the dry surface. We bell annealed EPS coils and they left no oil in the annealing bell or vent lines. Also, EPS' clean, consistent surface masks the silicon streaks that acid pickling highlights. We've been very happy annealing and cold reducing EPS."

- Robert Costello, VP Operations
Greer Steel Company
www.greersteel.com

EPS Is Green Steel Technology



Eco Pickled Surface technology is environmentally-friendly, especially compared to acid pickling.

The EPS working media, steel grit and water, is recirculated for continuous re-use. There are no hazardous chemicals or byproducts involved. The removed scale plus any depleted grit filtered from the system can be used in other industrial processes or included with scrap steel. EPS processing burns no fossil fuels for process heat, so energy costs are stable.

Contrast that with acid pickling's huge volumes of hazardous hydrochloric or sulfuric acid and the attendant problems of storing and disposing of the spent pickle liquor. Acid pickling also has immense energy requirements due to the natural gas consumed in heating the acid tanks.

Bottom Line: EPS-processed steel affords you the opportunity to save money, and to help save the environment.

Consistent Application Success

EPS-processed steel has amassed an impressive record of application performance in laboratories and manufacturing plants in the USA and Europe.

EPS-processed steel has replaced HRPO in rollforming and tube production, wheel hub drawing/spinning, laser cutting, stamping, cold reduction and galvanizing. These users felt EPS steel compared favorably to HRPO. Very favorably.

Paint performance is an area of particular importance. Nine separate automotive OEM paint tests have determined the curing, adhesion, corrosion resistance (salt spray exposure testing), and gasoline/oil resistance of painted EPS-processed samples. In every test, the EPS samples - prepared and painted in accordance with automotive body panel standards - exceeded industry acceptance criteria.

But no one attests better to the value of EPS processing than EPS customers:

"I'm very impressed with EPS. We proved it is rust-resistant and obtained excellent salt spray test results. It even removes silicon streaks. And with no oil, there's less smoke in our thermal processing and our paint pretreatment system stays much cleaner."

- Matt DeJong, VP of Manufacturing
DeJong Manufacturing, Inc.
www.dejongmfg.com

Get The EPS Advantage

We are accepting trials in quantities from a single sheet to a bargeload. Please call to arrange EPS processing of your material or obtain EPS-processed samples. To learn more about the advantages of EPS-processed steel, obtain test reports and read customer application stories, visit www.epsprocess.com.



101 South Main Street · Red Bud, IL 62278
Phone: 618 282-4200 · Fax: 618 282-4201

www.TheMaterialWorks.com

Copyright © The Material Works, Ltd. 2010. All Rights Reserved.