CROWN INDUSTRIAL SERVICES INC.

CLEANLINESS TESTING LABORATORY

We test to ISO 16232

Crown Industrial Services
Clean Technology Laboratory
2070 Brooklyn Rd.
Jackson, MI 49203

Phone: 517-905-5300
Fax: 517-787-4016
Date: 15 Dec 2015

Author/Process Technician: Jack Griffes

EVAPO-RUST®

Production Derusting Project

Rust can very literally eat up your profits. Even minor surface rust can cause parts to be rejected. Generally speaking removing that rust has been time consuming and/or hazardous along with having the potential to change critical dimensions. Strong acid while fast at removing rust brings with it employee health hazards, disposal issues, and the need for careful well timed attention so that the inevitable acid etch is not too deep (destroying the part you were trying to save). Blasting equipment often has difficulty effectively reaching all interior (and some exterior) surfaces of complex parts – leaving the potential that the labor will be partly or wholly in vain if rust is found in a location the blast media can't hit with good effect (if at all) and once the blasting is done you have to remove residual blast media, etc..

In mid-October 2003 we began working in earnest to find a way to remove rust on a production level which was safe for the parts and the humans involved in the process. Selective chelation rather than strong acid or blasting proved to be the safest, most cost effective means to remove rust. Evapo-Rust® is water-soluble, pH-neutral, reusable, biodegradable, non-toxic, and non-corrosive yet removes even heavy rust from steel/iron parts soaked in it at room temperature. Evapo-Rust® will remove even heavy rust merely via soaking the part at room temperature but it will take time, which is not always an option in a production environment. In one of our laboratory tests of heavily rusted samples – steel which had been outside for many months took 28 hours of soaking to completely remove the rust. This brought up the question of whether there were ways to speed up the rust removal process while maintaining the safety advantages of Evapo-Rust®. We found that via adding just the right amount of heat we could shave the time down to 3.5 hours which was a major improvement. We then found that if we used the right temperature along with ultrasonics we could shave the time down to well under an hour on these same heavily rusted samples. The year's worth of testing which followed proved that safe Production Derusting is indeed possible. Since 2004 we have done contract production derusting jobs (thousands of parts). Exact time frames required will depend upon the depth and type of rust you need removed and will have to be determined by testing. We can derust your parts here or use our knowledge base and experience to build production derusting equipment to meet your in-house derusting needs. Find on the following pages a few before and after photos of parts and/or equipment we have derusted in our Production Derusting equipment.

For Production Derusting or Equipment
call Bill Ong 517-905-5313
email: bong@crownindservices.com

CROWN INDUSTRIAL SERVICES INC.

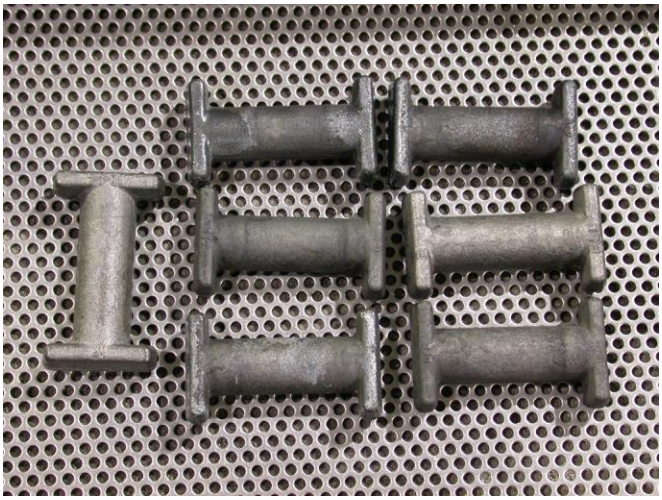
CLEANLINESS TESTING LABORATORY

We test to ISO 16232

Rusted monorail chain

30 minutes later – looks like new

Rusted Pins



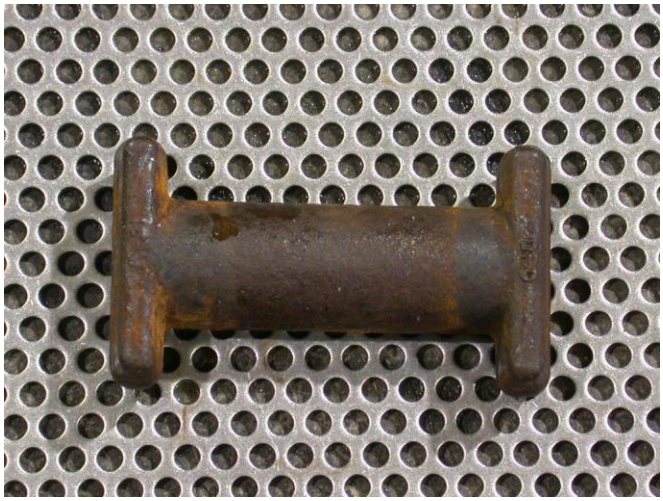
All the rust is gone

For Production Derusting or Equipment
call Bill Ong 517-905-5313
email: bong@crownindservices.com

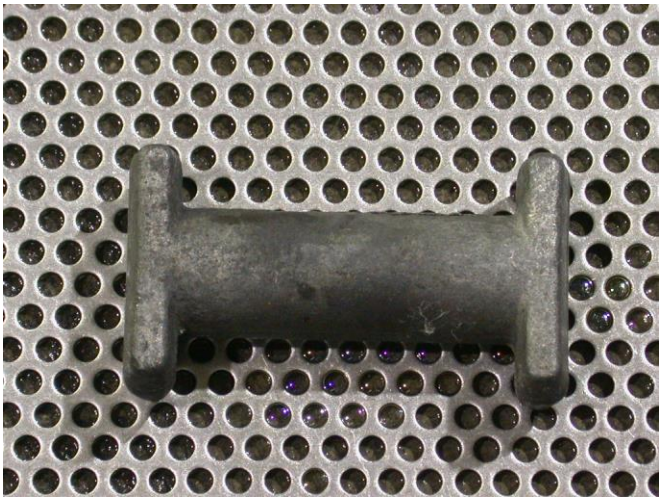
CROWN INDUSTRIAL SERVICES INC.

CLEANLINESS TESTING LABORATORY

We test to ISO 16232

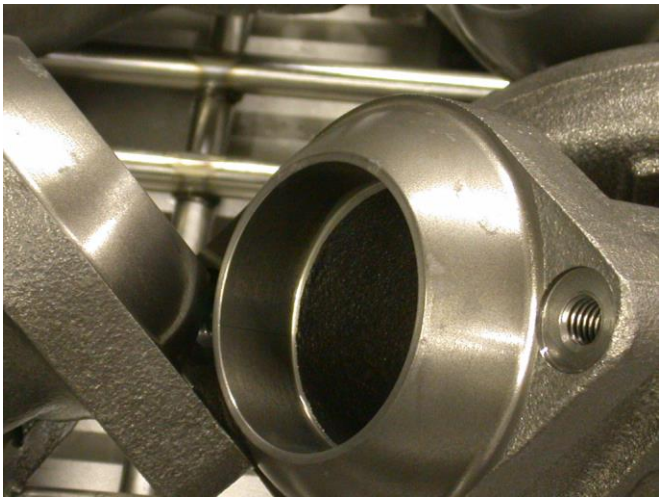


Close-up of rusted pin



Close-up afterward – no more rust

Machined Cast Iron with rust



10 minutes later – no more rust inside or out

For Production Derusting or Equipment
call Bill Ong 517-905-5313
email: bong@crownindservices.com