

RICERCA CHIMICA SRL

CORROSIONE SU ACCIAIO INOX:
PREVENZIONE E RIMEDI

DR. ERMANNO DELIA



UCIMU-SISTEMI PER PRODURRE



RICERCA CHIMICA GROUP is Leader in the production of Chemical Products, Equipment, Plants for the superficial treatment on metals, especially on Stainless Steel, Copper, Brass, Titanium, Aluminium. Our Presence is now accounting more than 75 Countries world-wide

The Research Laboratories has been working for around 30 years on development and improvement of Tailored Solutions in accordance with Environmental and Safety at Work: High technology in order to reduce production time and energy consumption.

Consulting: High Skilled Staff is dedicated to identify the Causes of Corrosion and being qualified to give instant and concrete Operational Solutions. On demand, we supply customized training courses on the subject "Corrosion and Stainless Steel Cycle according to ASTM International Standard" for the training of your operators

Stainless steel: why do you have to treat it?



His name was born when the people which worked stainless steel didn't know the features of this metal: really the stainless steel is OXIDIZABLE, and the cases that cause the corrosion and so a superficial contamination are several:

Thermal changes

the contamination of stainless steel with iron dust,

the utilization for iron and stainless steel of the same tools,

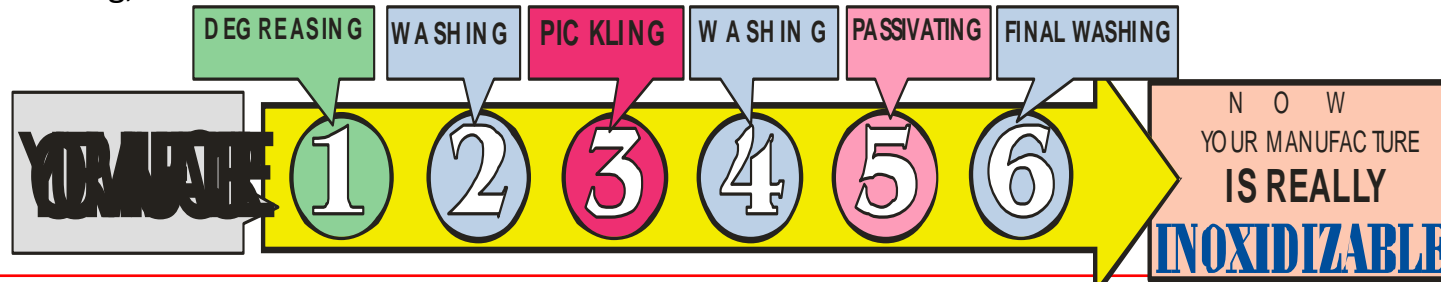
irregular surfaces, were it's possible the presence of many stagnation or inclusion points for organic or inorganic species,

mechanical treatments or bad welding,

Remnants of grease, oil of pressing and dirty stains,

Aggressive environments, like sea environments (where there are an high presence of chlorides),

If material used for treatment is old or contaminated or polluted, expecially for sandblasting and shot-blasting,



More than 100.000 Cases



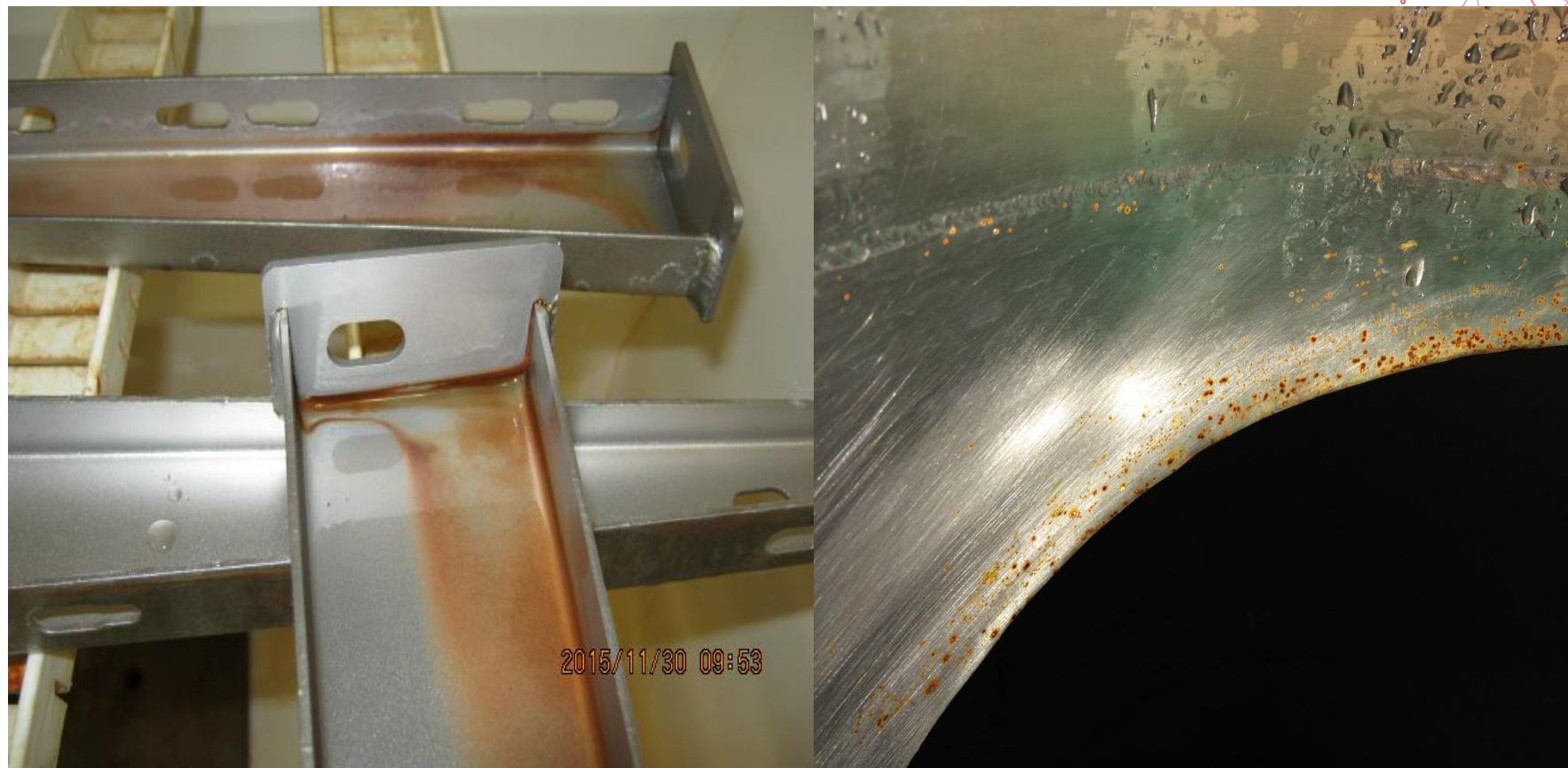
More than 100.000 Cases

BI-MUpiù



More than 100.000 Cases

BI-MUpiù



More than 100.000 Cases





How INOX SYSTEM REVOLUTION does it work?

The Cycle when the Manufact is built

The Cycle for Maintenance later on

- **Video Corrosion/oxidation removal**
- **Video Rouge removal**

BI-MU visit us at Padiglione/Hall 11, Stand F34

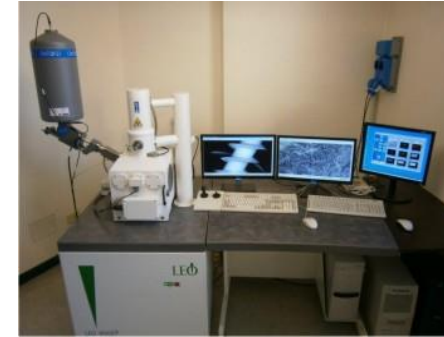


NO signs of corrosion after treating the Stainless Steel sample via INOX SYSTEM REVOLUTION

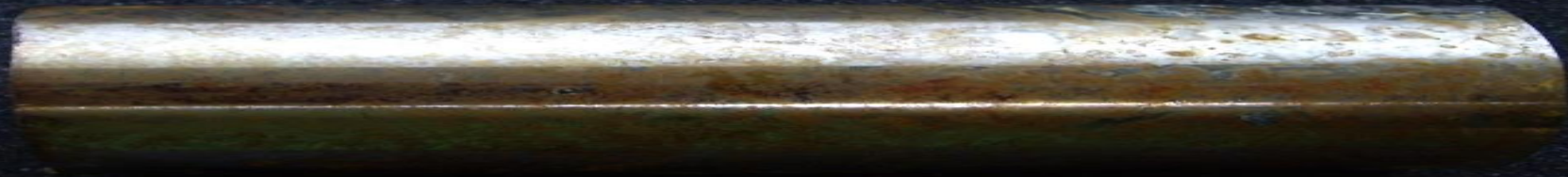
ASTM B117 Specifications	
Test Chamber	Chamber SALT.
Test	ASTM B 117
Concentration	5 % \pm 0.5 %
Density	1033 Kg/ m ³
pH	6.9
Volum	1,6 ml per 80 cm ² /hr
Temperature	35°C
Pression	0.9 atm
Stressed time	200 h

Tests ASTM B117

Standard practice for operating
salt spray (fog) apparatus



200 h Salt Spray
ASTM B117




Not Treated


INOX SYSTEM REVOLUTION in Compliance with ASTM 967

The Cycle of INOX SYSTEM REVOLUTION is fully compliance with the ASTM 967, the Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts (<http://www.astm.org/Standards/A967.htm>)



RAPPORTO DI PROVA N. 4485/15																																					
 <p>LABORATORIO CHIMICO VENETO S.R.L. DR. F. BORASCO -analisi chimiche, merceologiche, batteriologiche su: -acque potabili, acque di scarico, rifiuti, emissioni gassose -rilevazioni fonometriche con consulenti qualificati -analisi aria ambiente di lavoro e valutazione rischi -informazione e formazione dei lavoratori alla sicurezza -ecogestione ambientale e consulenza A.D.R.</p>	<p>Spett.le RICERCA CHIMICA DI MARANELLI G. & C. S.N.C. VIA E. FERMI, 368 35040 VIGHIZZOLO D'ESTE (PD)</p>	<p style="text-align: center; font-size: small;">Azienda con Sistema di Gestione Ambientale UNI EN ISO 14001:2004 certificato da CERTQUALITY</p>																																			
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<p>Foglio n. 1 di 2</p> <hr/> <p style="text-align: center; font-size: small;">RAPPORTO DI PROVA CHIMICA FINALIZZATA ALLA DETERMINAZIONE DELLA CONCENTRAZIONE DI SOSTANZE NOCIVE NELL'AMBIENTE LAVORATIVO, CONFORME QUANTO PREVISTO DAL TITOLO IX del D.LGS. 81/08 e DALL' A.C.G.I.H.</p> <hr/> <table style="width: 100%; border: none;"> <tr> <td style="width: 35%; vertical-align: top;"> <p>Locale interessato al campionamento Impianto interessato al campionamento Tipo di campionamento Tipo di lavorazione Prodotti usati Durata del prelievo Flusso di prelievo Metodo di prelievo Metodo di analisi</p> </td> <td style="width: 65%; vertical-align: top;"> <p>NESSUNO IMPIANTO DI FINITURA "INOX SYSTEM REVOLUTION" IN POSTAZIONE FISSA DECAPAGGIO A TORCIA S.C. DEL REVOLUTION dalle 09.00 alle 09.30 1 L/min NIOSH 7903 1994 (acidi inorganici) cromatografia ionica (NIOSH 7903 1994)</p> </td> </tr> </table> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 35%;">SOSTANZA</th> <th style="text-align: left; width: 25%;">CONCENTRAZIONE</th> <th style="text-align: left; width: 20%;">TLV - TWA</th> <th style="text-align: left; width: 20%;">TLV - STEL</th> </tr> </thead> <tbody> <tr> <td>ACIDI INORGANICI</td> <td></td> <td>-</td> <td>-</td> </tr> <tr> <td>Acido fluoridrico</td> <td>< 0,01 mg/mc</td> <td>0,4 (475)</td> <td>-</td> </tr> <tr> <td>Acido cloridrico</td> <td>< 0,01 mg/mc</td> <td>-</td> <td>2,9 (475)</td> </tr> <tr> <td>Acido nitrico</td> <td>< 0,01 mg/mc</td> <td>5,2 (13)</td> <td>-</td> </tr> <tr> <td>Acido solforico</td> <td>0,03 mg/mc</td> <td>0,2 (13)</td> <td>-</td> </tr> <tr> <td>Acido fosforico</td> <td>< 0,01 mg/mc</td> <td>1,00 (475)</td> <td>-</td> </tr> <tr> <td>Somma pesata Acidi inorganici</td> <td>0,13 mg/mc</td> <td>1,00</td> <td>-</td> </tr> </tbody> </table> <p>(13) ACGIH 2014 (475) ACGIH 2014</p> <p>LEGENDA: ----- TLV = valore limite di soglia</p> <p style="text-align: center; margin-top: 20px;">FINE RAPPORTO</p>				<p>Locale interessato al campionamento Impianto interessato al campionamento Tipo di campionamento Tipo di lavorazione Prodotti usati Durata del prelievo Flusso di prelievo Metodo di prelievo Metodo di analisi</p>	<p>NESSUNO IMPIANTO DI FINITURA "INOX SYSTEM REVOLUTION" IN POSTAZIONE FISSA DECAPAGGIO A TORCIA S.C. DEL REVOLUTION dalle 09.00 alle 09.30 1 L/min NIOSH 7903 1994 (acidi inorganici) cromatografia ionica (NIOSH 7903 1994)</p>	SOSTANZA	CONCENTRAZIONE	TLV - TWA	TLV - STEL	ACIDI INORGANICI		-	-	Acido fluoridrico	< 0,01 mg/mc	0,4 (475)	-	Acido cloridrico	< 0,01 mg/mc	-	2,9 (475)	Acido nitrico	< 0,01 mg/mc	5,2 (13)	-	Acido solforico	0,03 mg/mc	0,2 (13)	-	Acido fosforico	< 0,01 mg/mc	1,00 (475)	-	Somma pesata Acidi inorganici	0,13 mg/mc	1,00	-
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<p>36100 Vicenza - Via Divisione Folgore, 31 - Cod. Fisc./ Part.Iva 02174340246 - tel. 0444.920676 r.a. - fax 0444.922499 www.laboratoriochimicoveneto.it - E-mail: info@laboratoriochimicoveneto.it</p>																																					





RICERCA CHIMICA CONSULTING


Specializzati in Consulenza

COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DINV - ISO 9001-


689 R.C. DEK REVOLUTION


Electropickling solution for torch tool - INOX SYSTEM REVOLUTION


- PHOSPHATE-FREE
- NICHEL FREE
- WITHOUT ALLERGENS TO THE SKIN
- PRODUCT FREE FROM ANIONIC SURFACTANTS
- PERFUMED
- GASEOUS EMISSIONS CERTIFIED BY TESTED CONDITIONS




Life of the product, in undamaged package, 3 years from date of purchase.









Instructions for use

New formulation product with low environmental impact. The solution must be used together with torch tool (stainless steel tip with buffers) electrochemical device INOX SYSTEM REVOLUTION.

The product acts immediately once you go through the surface making an effective pickling. Rinse abundantly with cold and clean water the surface after the treatment.

Before using the product, consult the Operations Manual of R.C. INOX SYSTEM REVOLUTION

We recommend to stock the product in a fresh and ventilated place, and the containers in standing position and well closed For any further information, please, contact Technical Department. Caution: Always make a pre-test in order to ascertain the suitability of the product. EUH 210 Safety data sheet available on request.

RICERCA CHIMICA di Maranelli G & C. S.N.C.

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Professional use - Respect nature, do not release to the environment.

Pure and High Purity Water

- Pure water and high purity water are typically used in industries such as pharmaceutical and food sectors. In the pharmaceutical distillation may be used as final purification. The result is water with extremely low conductivity.
- Even AISI 316L stainless steel some times begin to rouge in the presence of hot high purity steam: it turns orange , red, black (glossy black or powdery black)
- The rouge layers can be examined using Energy Dispersive Spectroscopy (EDS) and Scanning Electron Microscopy (SEM) for the identification of the molecules species (it can be classified as Class I, Class II and Class III rouge depending on the cause of creation).
- Our Division RICERCA CHIMICA Consulting has a wide experience in making a full **Analysis of the causes and remedy** of the Rouge and Corrosion Phenomena



**RICERCA CHIMICA
CONSULTING**

Electrochemical Division



**PATENT
PENDING**

**INOX
SYSTEM**

Revolution



**THE TECHNOLOGICAL REVOLUTION
for the treatment
on STAINLESS Steel**

**NON DANGEROUS
PRODUCTS FOR
THE OPERATOR**



- 1 The Unique high-performance System in the world, able **to cover the whole treatment cycle** on Stainless Steel: degreasing, pickling, passivation, deoxidation (for maintenance), electropolishing.
- 2 The **fastest System in the world** for the pickling by the use of **different tools: Torches, Brushes and Multibrushes**.
- 3 The System uses new-generation **products** having a **very low Impact** on the operator during degreasing, pickling, passivation, deoxidation.
- 4 Chemical Products used for treatments of degreasing, pickling, passivation, deoxidation are not subject to any special regulations on transport **by road, by sea, by air (ADR licence not needed)**.
- 5 **Two Operators** can work at the same time with the same System !
- 6 **The System allows to work on Shiny Surfaces respecting the Brightness!**
- 7 The System allows to do **Maintenance** in order to **remove oxides, restoring the original surface** of Stainless Steel.
- 8 The emission values are inferior than the danger thresholds.

RICERCA CHIMICA GROUP

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AZIENDA CON SISTEMA
DI GESTIONE QUALITÀ
CERTIFICATO DA DIN
"ISO 9001"

BI-MUpiù

BIMU Exhibition

Test Now

**INOX System Revolution
at
Padiglione/Hall 11,
Stand F34**



**RICERCA CHIMICA
CONSULTING**
Specializzati in Consulenza

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**More than 100.000 Cases
of treatment successfully faced**

BI-MU visit us at Padiglione/Hall 11, Stand F34