

# socomore



## *Aluminium Surface Treatment*

*Socomore's complete range  
of REACH compliant products*

**The Surface Company**

For more than 40 years, SOCOMORE has been creating, manufacturing and commercialising expert solutions for the preparation, protection, treatment and control of metallic and composite materials. **Our research protocols target the substitution of Cr(VI), Borate and other CMR substances via a new generation of products.**

Thanks to the expertise of our R&D team, we can now offer a **Complete Range of Cr(VI) & Borate Free Products for Aluminium Surface Treatment** that not only **provide the solution to REACH issues**, but can also potentially offer **process, performance improvements and operational cost savings.**

### → What is Aluminium Surface Treatment?

Surface treatment is the processing of aluminium parts, during the production of elementary parts, to prepare them for other processes – NDT, Painting, Bonding, etc. It is performed:

- To clean and deoxidize surfaces before treatment or inspection
- To improve adhesion properties
- To improve anticorrosion properties

### → REACH issues in Aluminium Surface Treatment

Two main chemicals, **Cr(VI) & Borate Salts**, have been identified by REACH as an issue, and a calendar to remove them from industrial processes has been defined.

## ALUMINIUM SURFACE TREATMENT RANGE

SOCOMORE has a **FULL RANGE** of REACH Compliant products for Aluminium Surface Treatment Lines.

SOCOMORE has developed **Cr(VI) and Borate FREE products, designed to meet the requirements of major OEMs**, for each stage of the surface treatment process, offering customers **one complete solution from one supplier.**

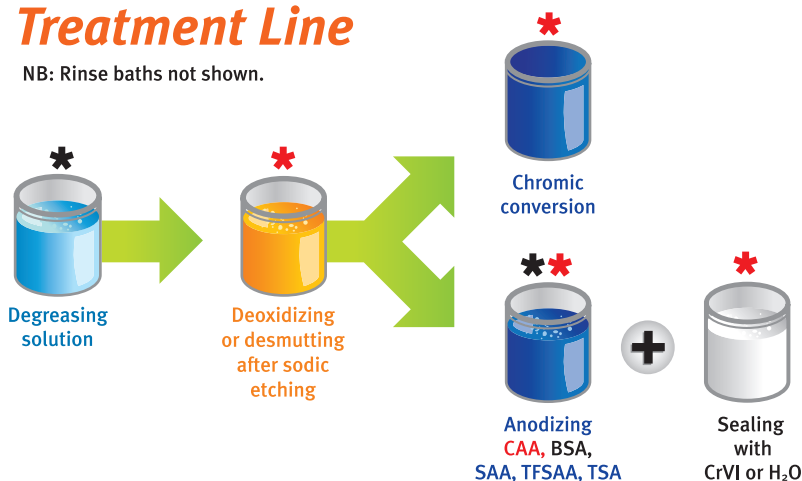
### A complete process from one supplier



Meets the qualification requirements of the major OEMs.

## Typical Aluminium Surface Treatment Line

NB: Rinse baths not shown.



\* Borate Salts \* Cr(VI) SVHC\* submitted for authorisation, depending on use

\* Substance of very high concern

The surface treatment industry needs to work on the evaluation and qualification of alternative, REACH compliant substances.

# DEGREASING

## SOCOCLEAN A3432

Borate & Silicate Free Aqueous Degreaser

Degreaser for surface cleaning operations on surface treatment lines.

### KEY FEATURES

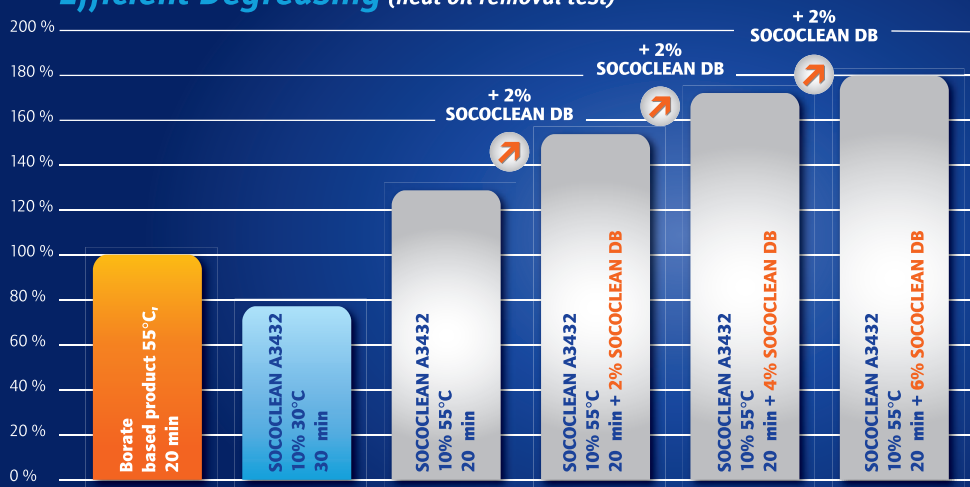
- ▶ Borate free formulation.
- ▶ Designed to meet the qualification requirements of major OEMs.
- ▶ Removes most contaminants including cutting, forming and drilling lubricants.
- ▶ Compatible with aluminium, titanium, magnesium, steel and stainless steel alloys.
- ▶ Ink removal: solvent pre-cleaning not required.
- ▶ Silicate free.
- ▶ Dedicated reinforcing additives available.
  - ▶ SOCOCLEAN DB boosts the degreasing properties.
  - ▶ SOCOCLEAN IR boosts ink removal properties.
- ▶ Anti-foaming additive, SOCOCLEAN AF, available.

### KEY ADVANTAGES

- ▶ REACH compliant.
- ▶ Suitable for use by many different users and subcontractors.
- ▶ Reduces VOC emissions (as per European regulation).
- ▶ Reduces solvent consumption.
- ▶ Reduces cycle times.
- ▶ No white marks on parts and no interference with surface treatments = less quality issues with the process.
- ▶ Less tool maintenance.
- ▶ Will not impair NDT operations: no increase in unwanted background during FPI.
- ▶ Bath life optimisation.
- ▶ Compatible with baths using air agitation.
- ▶ Suitable for spraying with anti-foam additive.

### OVERALL BENEFIT = PROCESS & OPERATIONAL COST SAVINGS

#### Efficient Degreasing (neat oil removal test)



#### Efficient Ink Removal



Qualifications in progress with main OEMs:

AIRBUS, DASSAULT AVIATION, LOCKHEED MARTIN, FOKKER and SAFRAN.

# DEOXIDIZING / DESMUTTING

## SOCOSURF A1858/A1806 REACH Compliant, Acid Based Deoxidizer

For use prior to chemical conversion or sol-gel treatment, anodizing, penetrant inspection, chemical milling, bonding and welding operations. Can be used as a direct deoxidizer, or as a desmutter after sodic etch on aluminium alloys.

### KEY FEATURES

- ▶ Chromate free.
- ▶ Fluoride free.
- ▶ Each component is controllable and adjustable.
- ▶ Additional additives, SOCOMUL TA & SOCOSURF A1850, available.
- ▶ Low surface tension.

### KEY ADVANTAGES

- ▶ REACH compliant.
- ▶ Stable etch rate.
- ▶ Stable performance, even with a high concentration of metallic elements.
- ▶ HS&E improvements.
- ▶ Rinse water treatment is easier to manage.
- ▶ Ability to monitor costs.
- ▶ Consistent process and performance.
- ▶ Efficient rinsing process.
- ▶ Improves the water break free performance of the surface.
- ▶ Uniformly attacks the surface.

### OVERALL BENEFITS

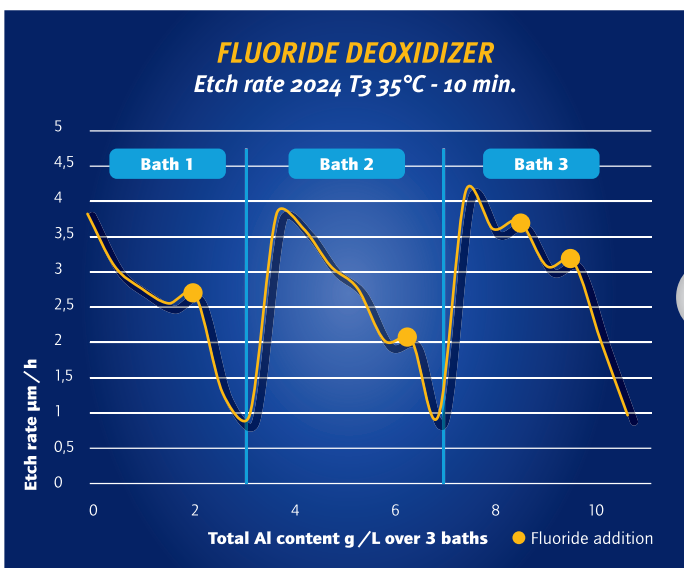
- Less bath renewals: one manufacturing plant achieved a 20% cost reduction (chemical top-up/ renewal & waste treatment)
- A reduction in production stoppages & their associated costs (2% saving in production days)

### Acid deoxidizer or desmutter containing fluoride

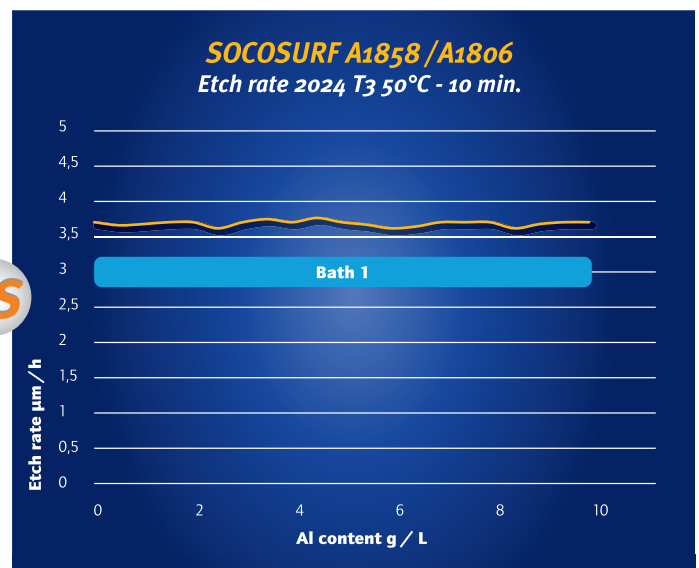
The etch rate of the bath depends on the **fluoride and aluminium** content, so the etch rate is **unstable** as the fluoride and aluminium content evolve over time.

### SOCOSURF A1858/A1806

Without fluoride, the etch rate depends on temperature so the etch rate is stable, even with a high level of aluminium in the bath.



VS



Approved\*\* by AIRBUS FRANCE, AIRBUS UK, AIRBUS HELICOPTERS, AIRBUS GROUP, BOEING, DASSAULT AVIATION, EADS CASA, THALES ALENIA SPACE, SAFRAN HELICOPTER ENGINES (formerly TURBOMECA). Also has a long history with AIRBUS Tier 1 suppliers: PREMIUM AEROTEC, STELIA AEROSPACE etc.

\*\*see TDS for specification/ approval references.

# CONVERSION AND SEALING

## SOCOSURF TCS

TRIVALENT CONVERSION & SEALING

## SOCOSURF PACS

PASSIVATION AFTER CONVERSION & SEALING

CR(III) Based Solution For Chemical Conversion & Sealing After Anodizing

An alternative process to CR(VI) for conversion treatments or for sealing after anodizing. It is compatible with all types of anodizing and can be used for local touch-ups.

### KEY FEATURES

- CR(VI) free.
- Developed as a single solution for conversion coating and sealing after anodizing.
- Can be used for both processes in the same concentration and temperature.
- Enriched layer with rare earth elements.
- Two step process.

### KEY ADVANTAGES

- REACH compliant.
- Existing lines can be easily adapted – no extra space required.
- Reduction in maintenance operations.
- Bath monitoring operations are easier.
- Meets OEM requirements for anti-corrosion (168 hours SST\*), electrical conductivity and paint adhesion.
- Downgrading of the current OEM specification is not required.

### Electrical contact resistance

According to MIL DTL 81706

Parameter	Requirement (as per MIL DTL 81706)	Trivalent conversion post treatment process
Electrical contact resistance before SST*	< 5000 $\mu\Omega$ / inch <sup>2</sup>	✓
Electrical contact resistance after 168h SST*	< 10000 $\mu\Omega$ / inch <sup>2</sup>	✓

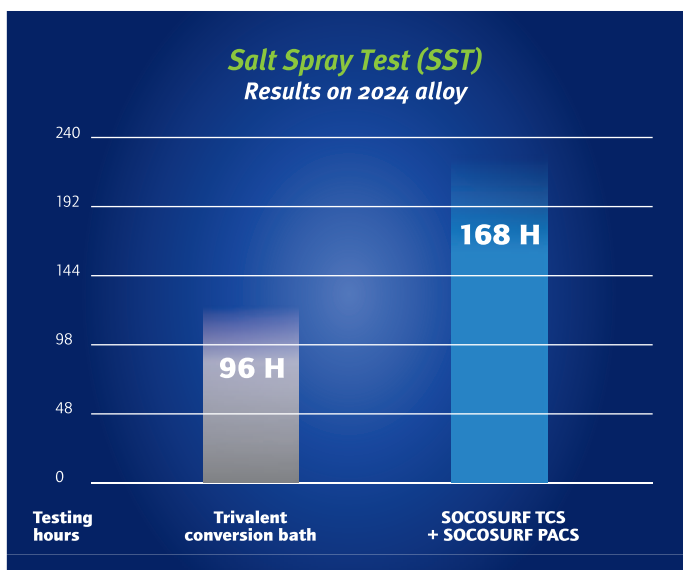
\* Salt spray test on 6061 alloy, measured on 10 points on 5 panels.

### Paint adhesion

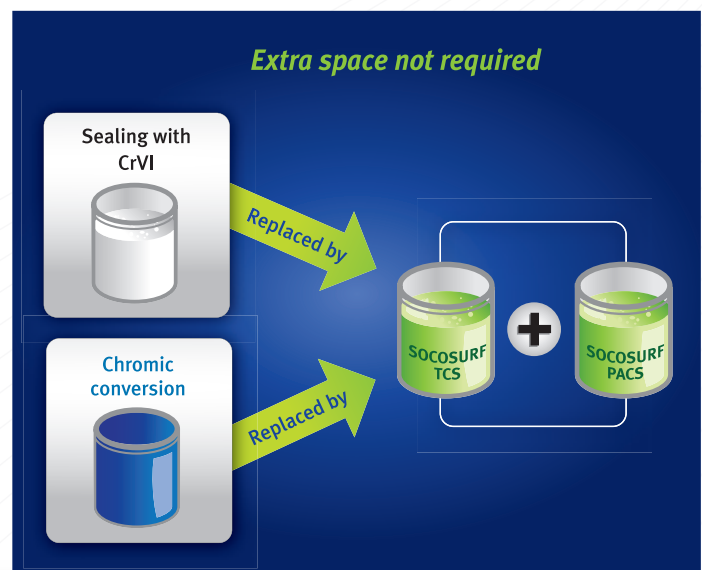
Dry / wet adhesion cross-cut test on 2024 alloy

	Chromate based		Chrome free	
	Dry	Wet	Dry	Wet
Water based paint	✓	✓	✓	✓
Solvent based paint	✓	✓	✓	✓

### Salt Spray Test (SST) Results on 2024 alloy



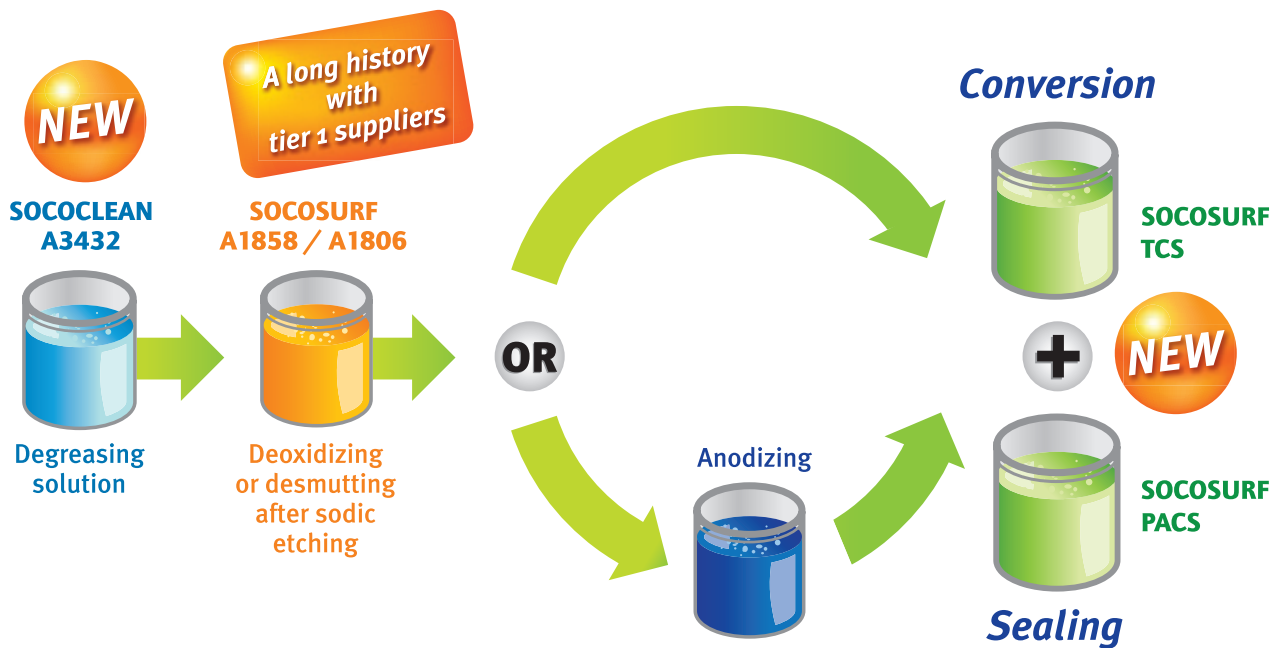
### Extra space not required



Under evaluation/ qualification\*\*\* by AIRBUS, BELL, BOEING, BOMBARDIER, DAHER, DASSAULT AVIATION, GE, LIEBHERR, LOCKHEED MARTIN, PRATT & WHITNEY, ROLLS ROYCE, UTC plus many more.

\*\*\*contact us for a full list of OEMs & Manufacturing Sites.

# Aluminium Surface Treatment Line: New Process



SOCOMORE has a range of paint strippers which can be used in baths, or applied by brush, for touch-ups on painted elementary parts after surface treatment.

**New to the range:**  
**SOCOSTRIP A4512,**

for use on water and solvent-based paints, chromated or unchromated.

**SOCOMORE**  
*also offers a wide range of Non Destructive Testing (NDT) products.*



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