



COLOURED AND COLOURLESS
PRETREATMENT
BEFORE COATING, ACCORDING TO
QUALICOAT AND GSB
CERTIFICATION

FABIO VINCENZI



EUROPEAN HEXAVALENT CHROME AUTHORIZATION

REACH SUNSET DATE



- FORMULATION OF MIXTURES
- SURFACE TREATMENTS FOR AERONAUTIC AND AEROSPACE INDUSTRY



- SURFACE TREATMENT FOR GENERAL INDUSTRY



STANDARD CYCLE WITHOUT CHROME (VI)

ALKALINE DEGREASING

RINSING

ACID DESMUTTING

RINSING

DEMI RINSING

CONVERSION TREATMENT

DEMI RINSING

ACIDIC CYCLE WITHOUT CHROME (VI)

ACID DEGREASING

ACID DESMUTTING

RINSING

DEMI RINSING

CONVERSION TREATMENT

DEMI RINSING



CHROME(VI) FREE...

HIGHER pH



LESS CLEANING
POWER

POLLUTANTS



MORE SENSITIVE

LOW WEIGHT



LESS PROTECTIVE
LAYER

COLOURLESS



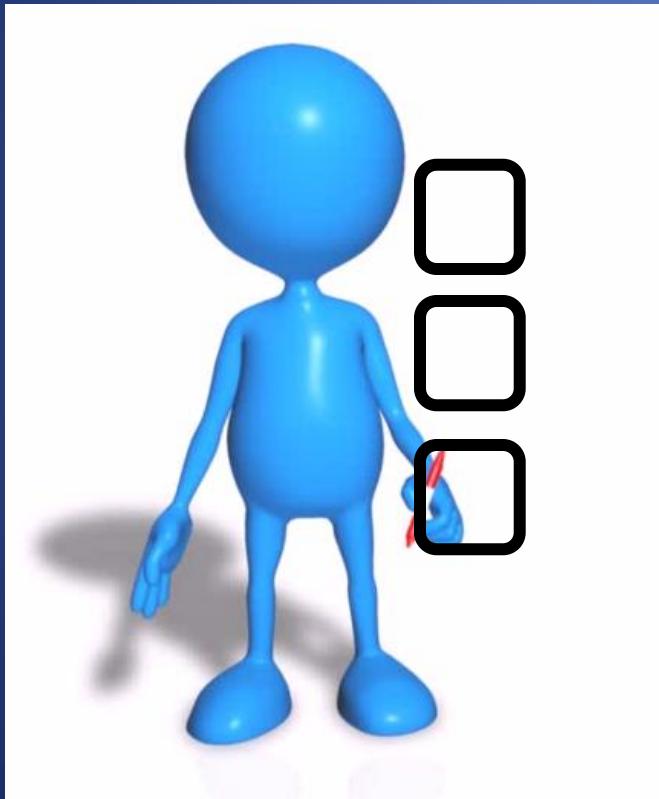
NOT SO EASY TO
USE

Required:

- MORE ANALYSIS**
- ATTENTION**
- PERFECT CLEANING, ...**



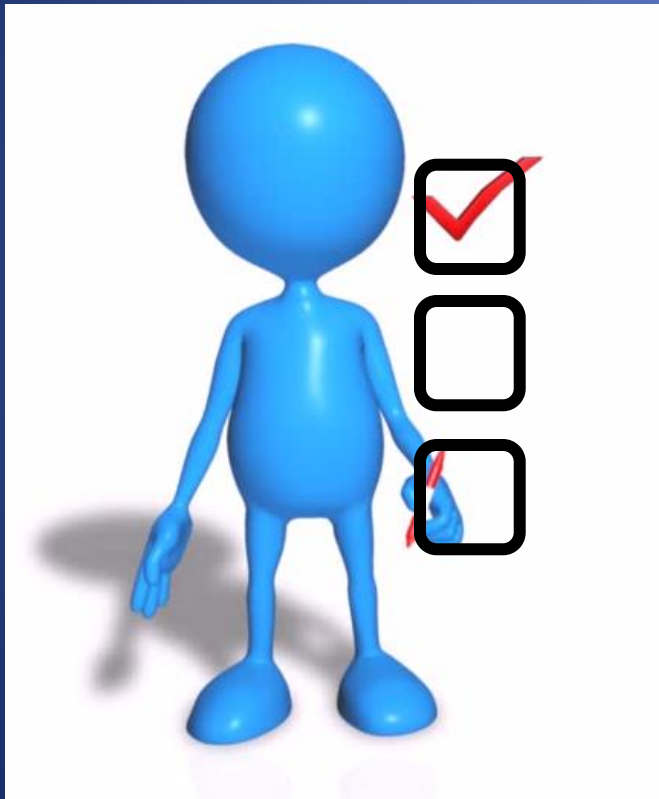
CHROME(VI)-FREE REQUIREMENT...



Corrosion resistance



CHROME(VI)-FREE REQUIREMENT...

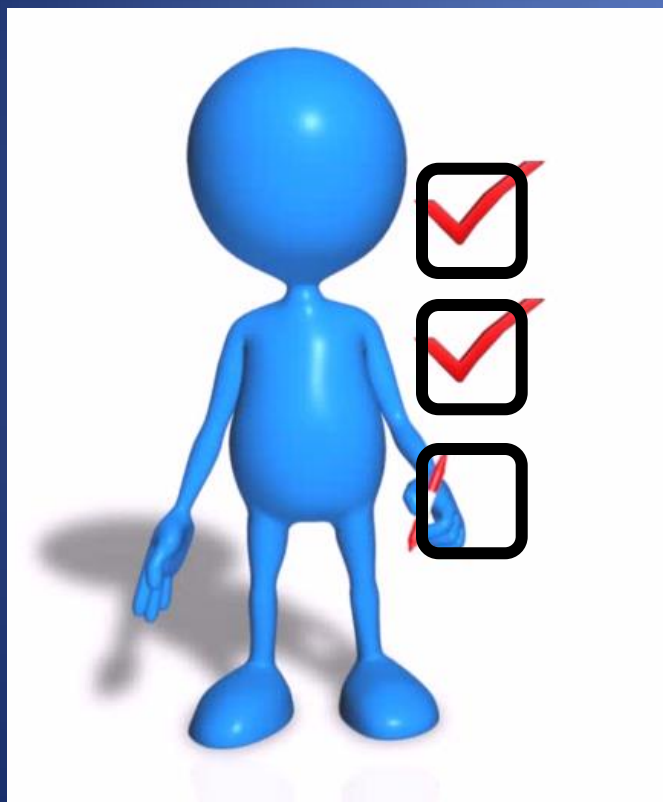


Corrosion resistance

Coating adherence



CHROME(VI)-FREE REQUIREMENT...



Corrosion resistance

Coating adherence

Easiness of use



ITALTECNO SUGGESTION:

TRIVALENT CHROME:

BEST PERFORMANCE AGAINST
CORROSION

COLOURED CHROME-FREE:

BEST EASINESS OF USE



TRIVALENT CHROME PRODUCT

Generation of the coating

The generation of the coating takes place in two reaction steps:

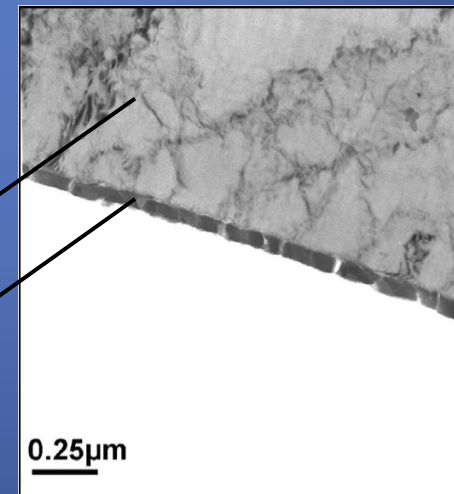
Etching reaction:



Coating reaction:



Aluminum
Passivation coating





TRIVALENT CHROME PRODUCT

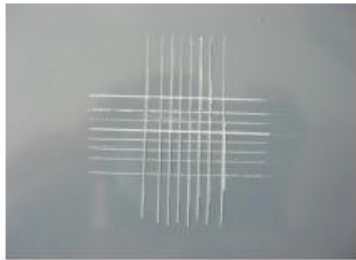
Filiform corrosion test





TRIVALENT CHROME PRODUCT

Mechanical adhesion tests - Aluminum



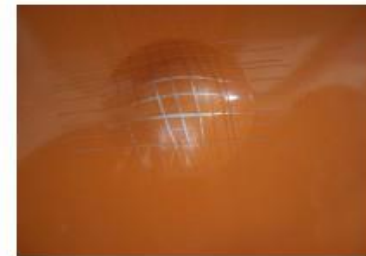
Cross-Cut



Mandrel-Bending



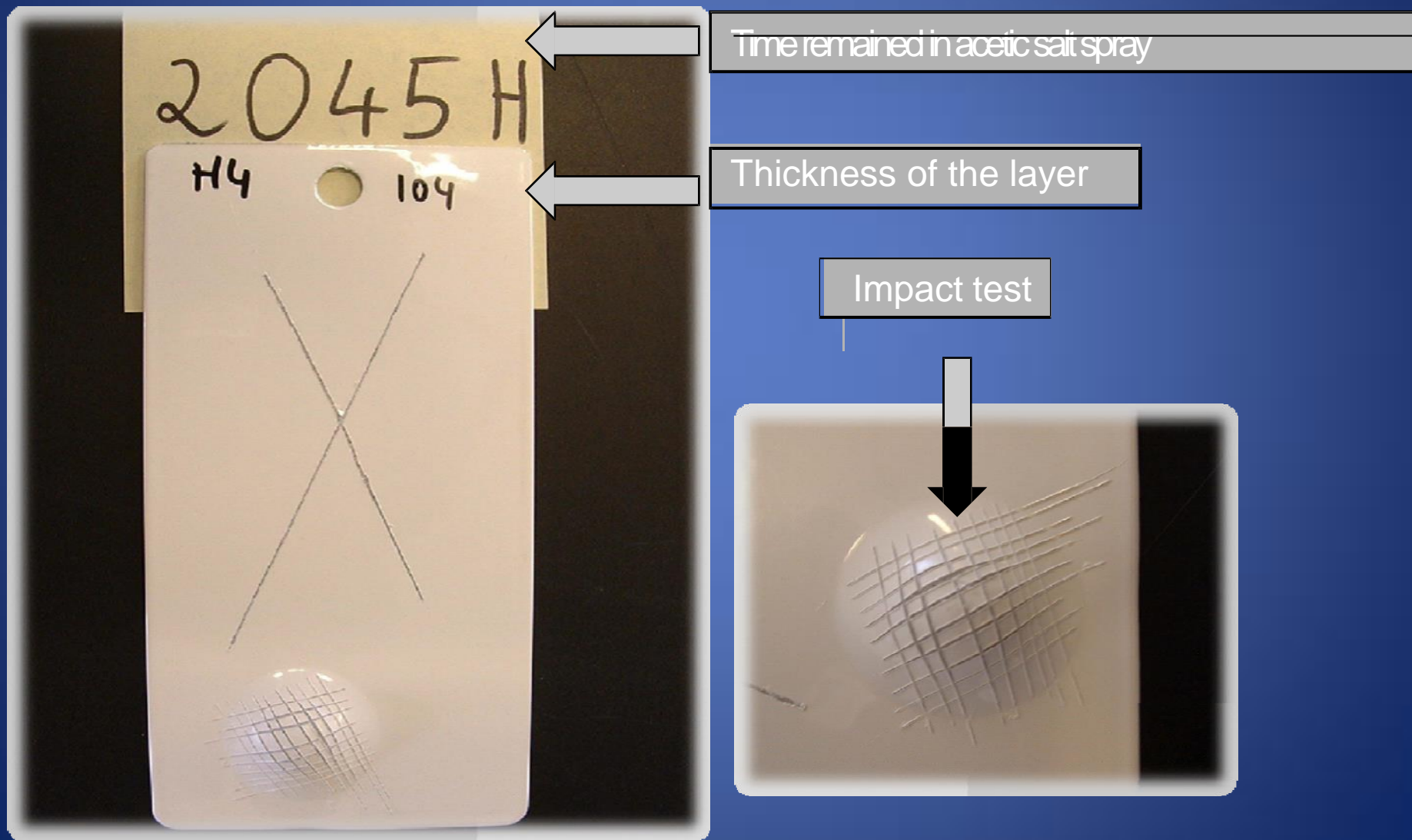
Impact Test (1 m)



Impact Test on Cross Cut
(1 m)



TRIVALENT CHROME PRODUCT

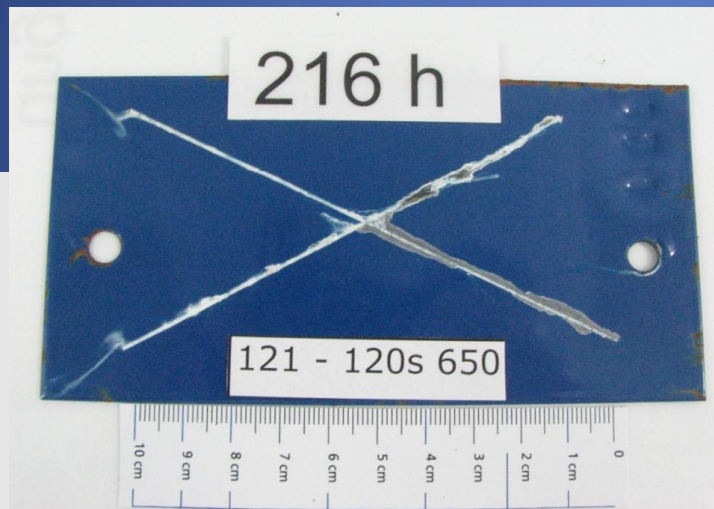




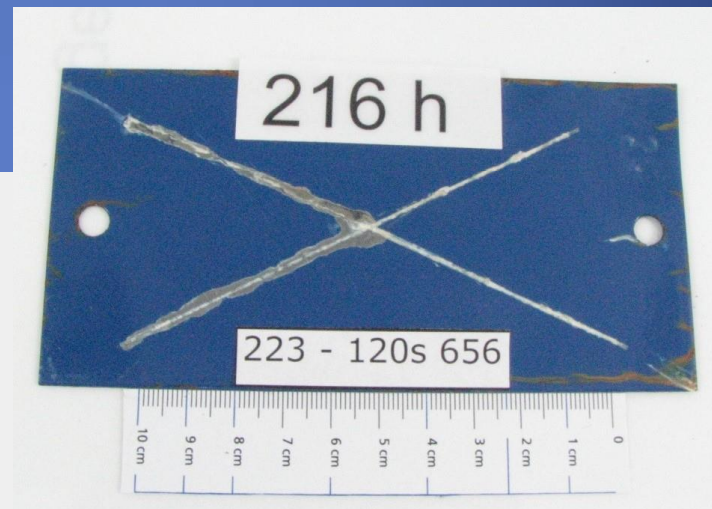
TRIVALENT CHROME PRODUCT

Corrosion protection in comparison

HDG – Testpanels: Dip-Application + Powder-coating



Trivalent chrome
216 h Salt spray test



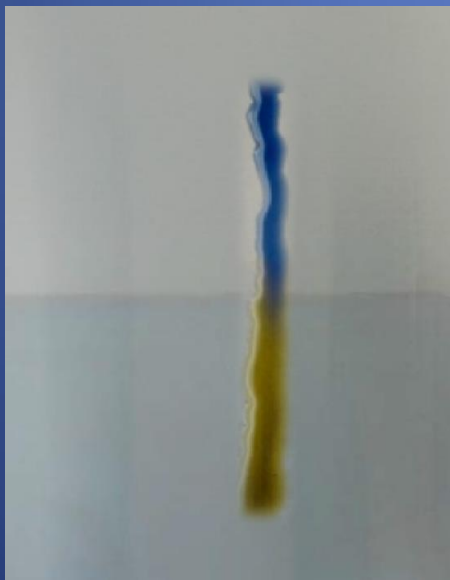
Yellow Chromate
216 h Salt spray test



TRIVALENT CHROME PRODUCT

Color of the layer – Layer verification

After passivating



After Salt spray test - 168 h





TRIVALENT CHROME

- SUITABLE FOR PROTECTION AND PRETREATMENT
- COMPLIES ELV, WEE AND ROHS
- SIMPLE AND CHEAPER WASTE WATER TREATMENT



TRIVALENT CHROME

TRIVALENT CHROME SALTS ARE NOT CLASSIFIED

TRIVALENT CHROME SALTS ARE NOT
CANGEROGENIC FOR HUMANS

NOT SENSIBLE TO POLLUTANTS

AUTOMATIC CONTROL POSSIBLE



ALUGOLD SCR



Finally
COLORED!!!



WORKING PARAMETERS

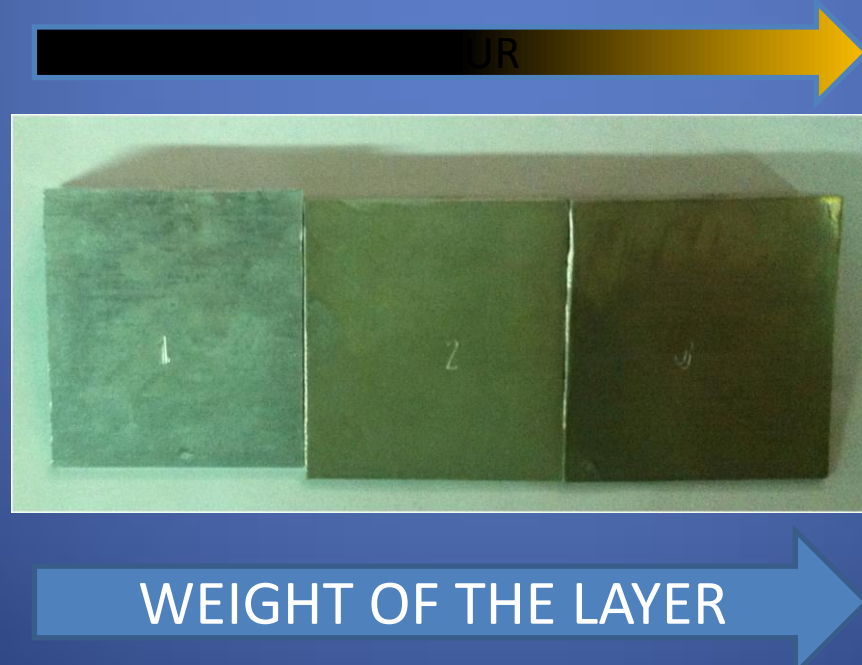
- **Concentration:** 40 g/l
- **pH:** 5.0 – 5.4
- **Temperature:** 25°C
- **Treatment time:** 1 – 2 minutes
- **Conversion layer:** 0.15 – 0.30 g/m²





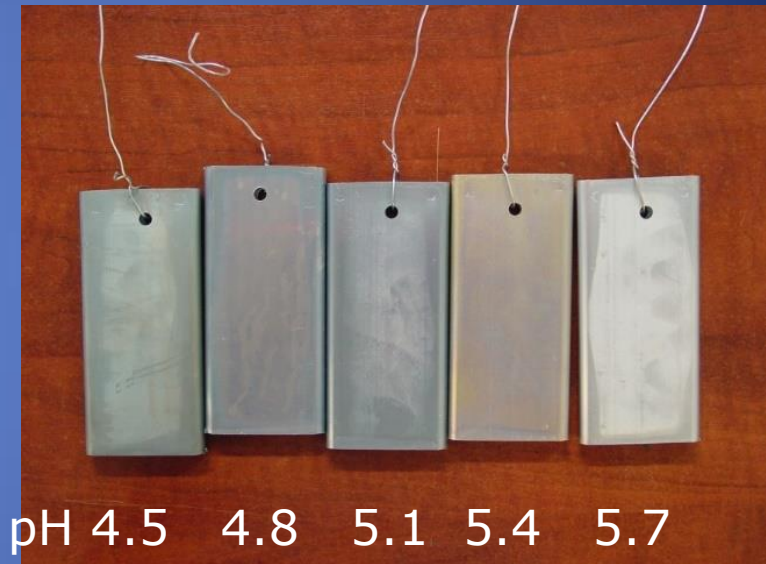
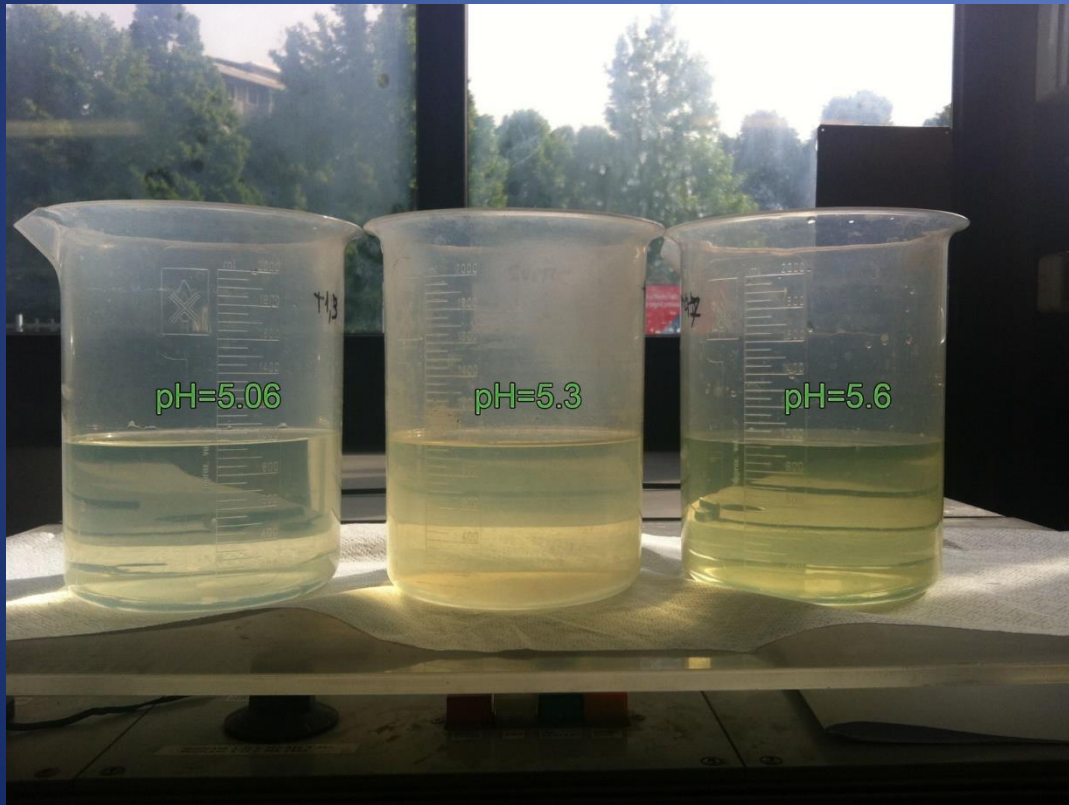
CONVERSION LAYER

- THE COLOUR IS DIRECTLY PROPORTIONAL AT THE WEIGHT CONVERSION LAYER!!!



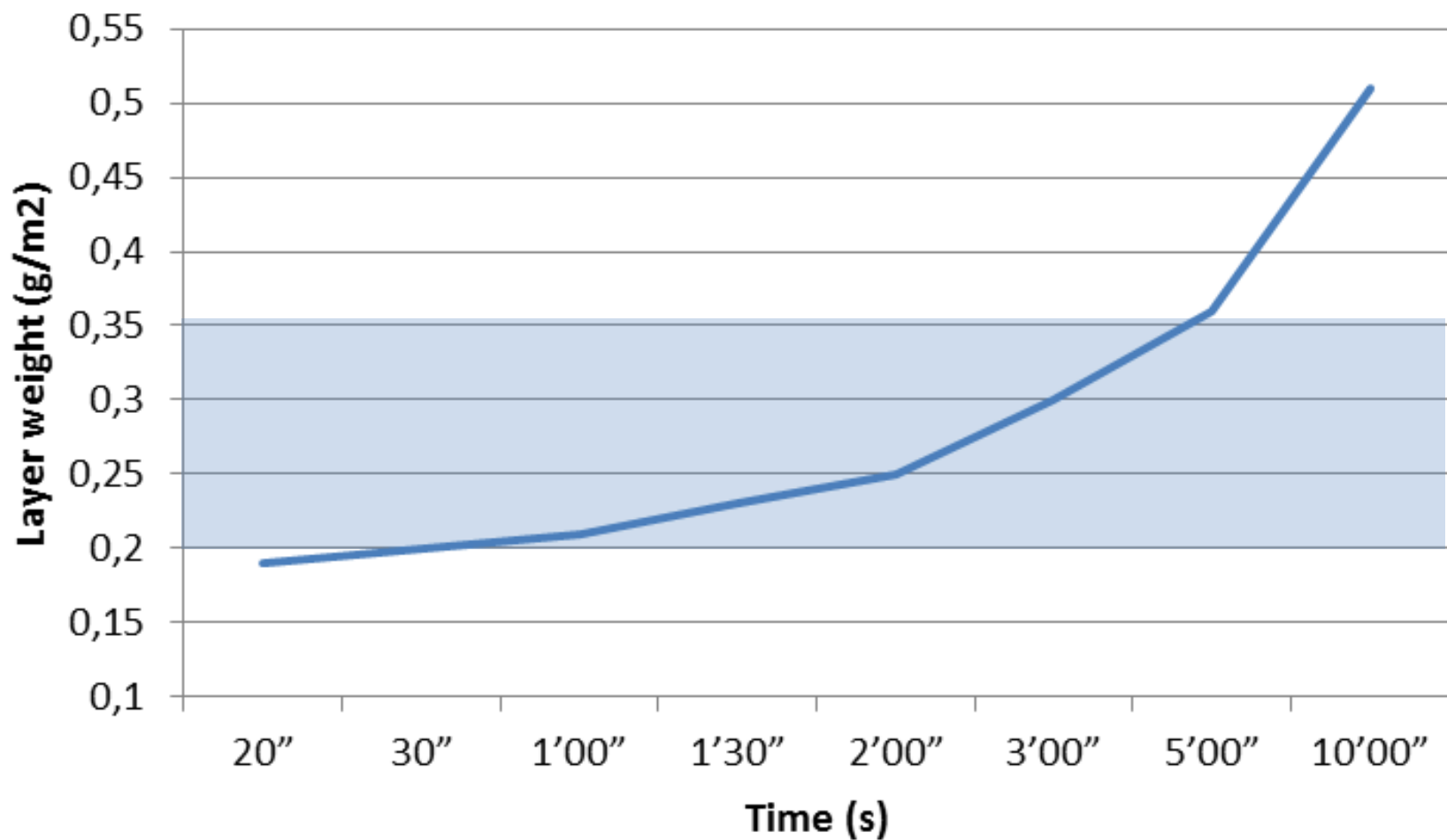


COLOR AGAINST THE pH



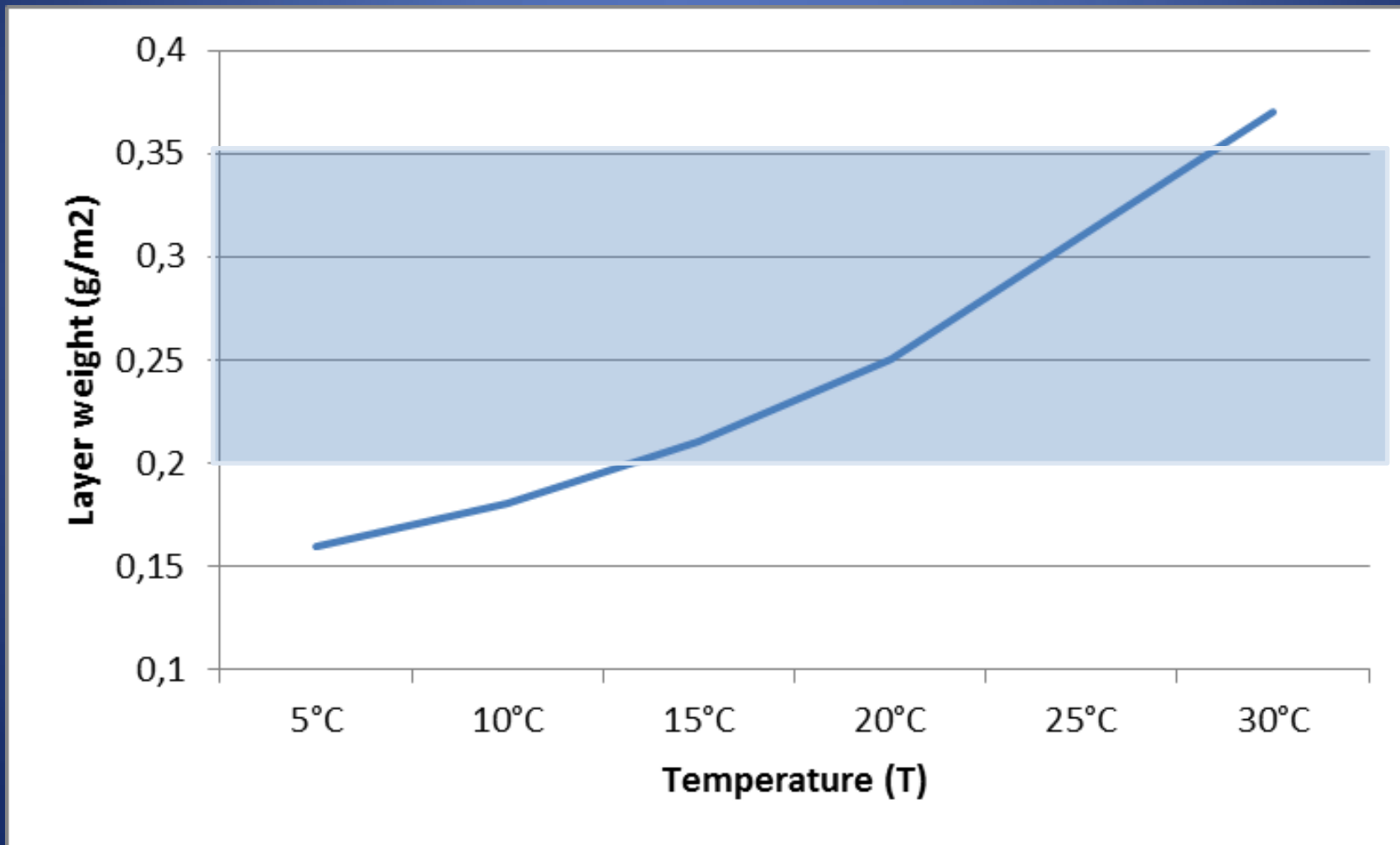


LAYER WEIGHT VS TIME





LAYER WEIGHT VS TEMPERATURE



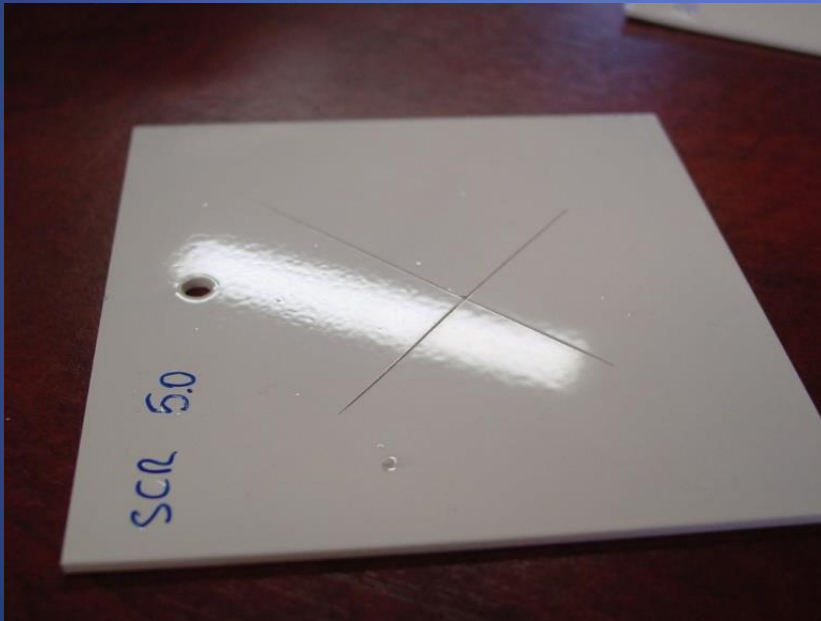


POLLUTANTS

- Alugold scr is very stable and inert to many compounds
- Low maintenance is required
- Simple and fast analysis
- No filtration is required



CORROSION RESISTANCE

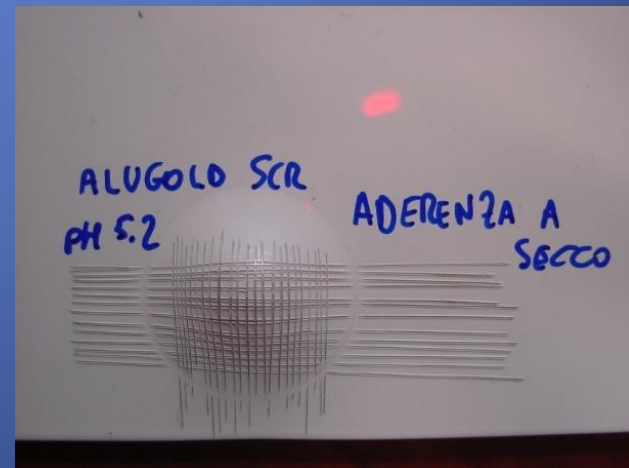
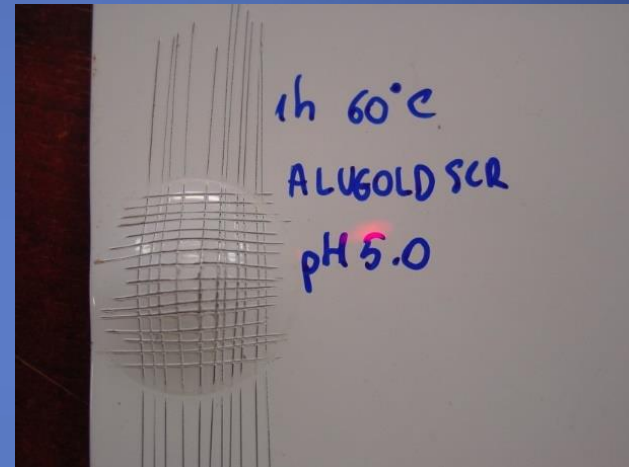


**CORROSION
RESISTANCE:
exceed 1000
hr in acetic-
salt spray test
(ISO 9227)**





PAINT ADHESION

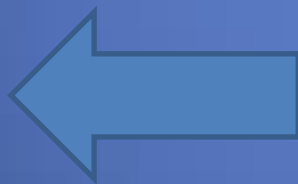




Alugold SCR on ZAMAK



Bad
cleaning



Good
cleaning





Alugold SCR on ZAMAK



- GOOD ADHESION
- HIGH CORROSION RESISTANCE



ALUGOLD SCR on DIECASTING





Qualicoat approved

APPROVAL

No. A-093

Alternative pretreatment material

Qualicoat hereby approves the following pretreatment product from

Italtecno, Modena (MO)
Modena (MO) (Italy)



ALUGOLD SCR

In conformity with Appendix A6 of the QUALICOAT Specifications
only when used with approved powder coating systems

Product approved since: 15.03.2013

Approval valid until: 31.12.2019

Zurich, 16 December 2016

QUALICOAT

Mohammed C. Panam
President

CERTIFICATION BODY

Josef Schoppig
General Secretary



INDUSTRIAL PRODUCTION

**ANOBRI L ANODIZAÇÃO
PINTURA E EXTRUSÃO DE
ALUMINIO LTDA**

Horizontal treatment line



INDUSTRIAL PRODUCTION

STARCOLOR (BRAZIL)

Vertical treatment line





ALUGOLD SCR: CASE HISTORY

- PLANT: STARCOLOR
- VERTICAL PLANT – CUBE
- PRODUCTION: 250 Tons/month
- ARCHITECTURAL PROFILES



CASE HISTORY: START-UP



Layer weight

Target:

0.2-0.35
g/m²

Obtained

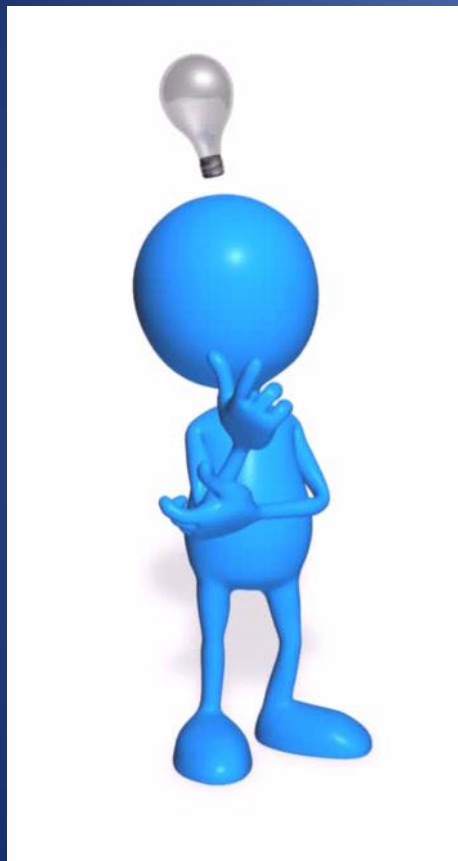
0.55
g/m²

- ❖ Concentration: 50 g/l
- ❖ Temperature: 27°C





CASE HISTORY: SOLUTION



Less
Concen-
tration



Lower
Temper-
ature



Alugold SCR: 30
g/l

Temperature:
25°C



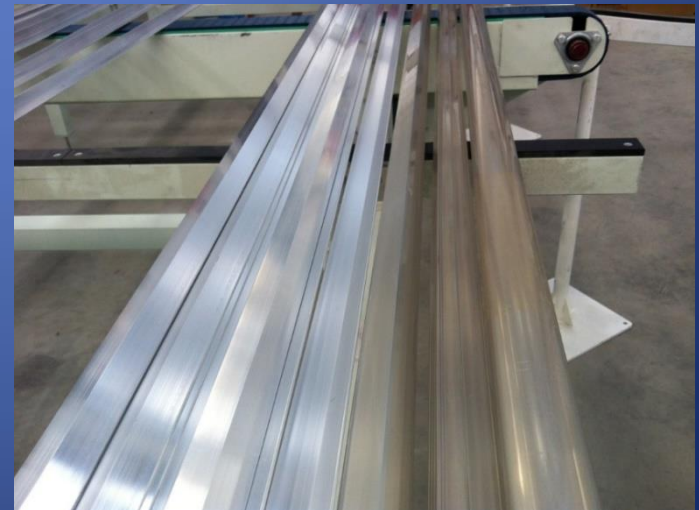
CASE HISTORY: PRODUCTION



Layer weight

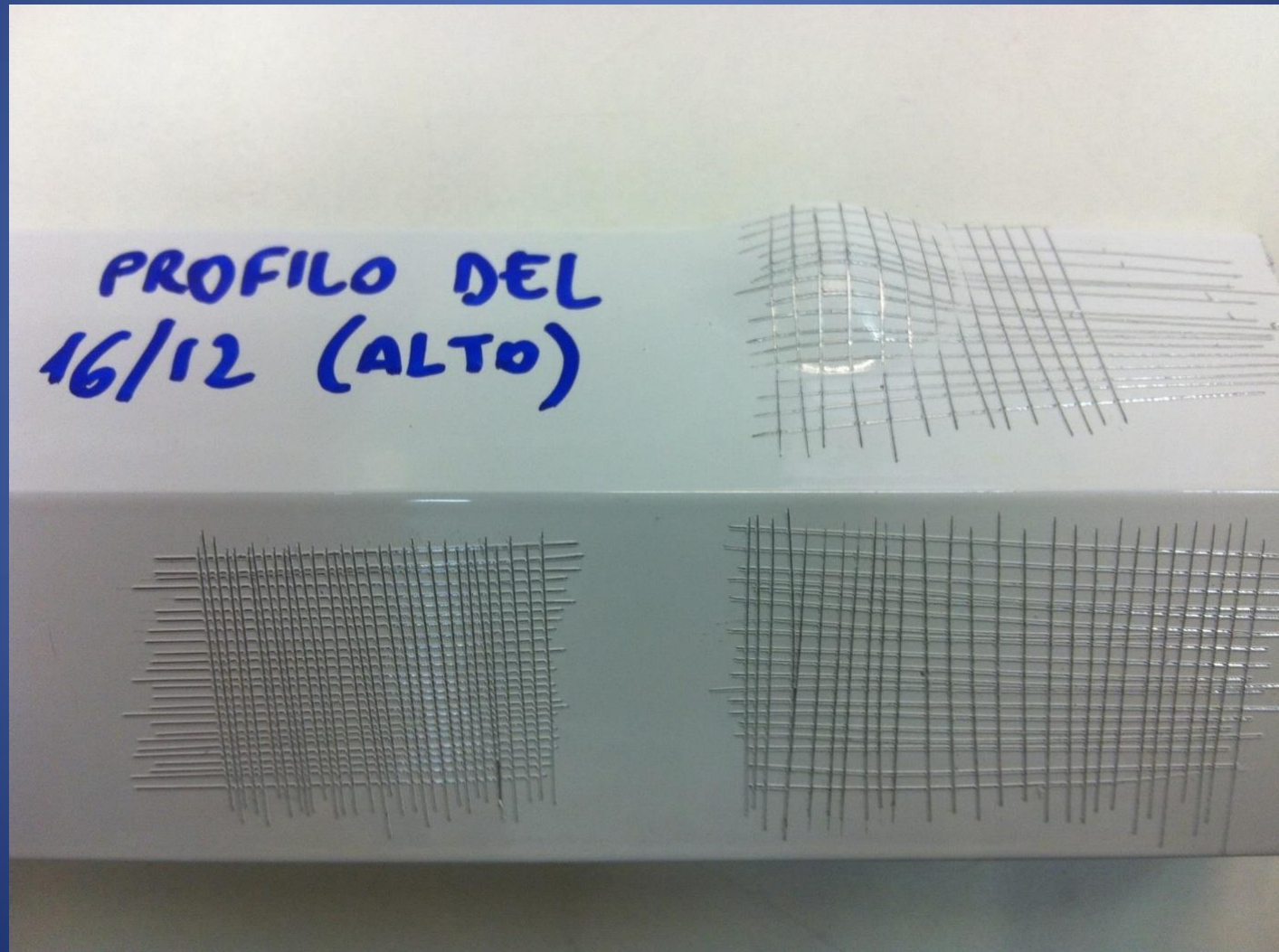
Target:
0.2-0.35 g/m²

Obtained:
0.31 g/m²



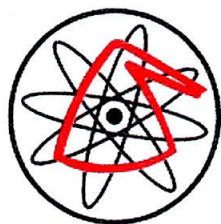


CASE HISTORY: PRODUCTION





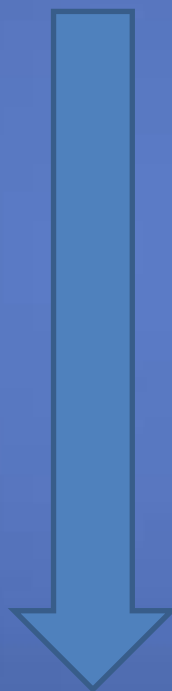
ITALTECNO srl



ITALTECNO srl



GREAT INDUSTRIAL
EXPERIENCE WITH
DIFFERENT CHROME-FREE
PRODUCTS (HORIZONTAL
AND VERTICAL PLANTS)



TECHNICAL ASSISTANCE AND
CUSTOMER'S TRAINING



CONCLUSIONS

- There are a large number of technologies without hexavalent chrome
- Most of the products can be used with optimal results
- Most important factor is:

the experience and training





**THANK YOU
FOR YOUR ATTENTION**

www.italtecno.com