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The Ultimate Corrosion Protection under Insulation

Technical Workshop NACE Jubail

December 10th 2015

The (old) problem

- What you can’t see, isn’t there??
- Insulation should insulate, not cut away to inspect
- This problem has been solved 10 years ago

What to achieve!

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- 100 % reliable protection
- Impenetrable layer for moisture and oxigen to eliminate corrosion
- Damaging of the layer is impossible during installation and use
- High temperature resistance
- No inspection needed
- Lifetime protection

The three T's

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- **T**otal barrier
- **T**imeless protection
- **T**otal costs of ownership low

How to achieve this

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One answer:

- Thermally Sprayed Aluminium

TSA The principles

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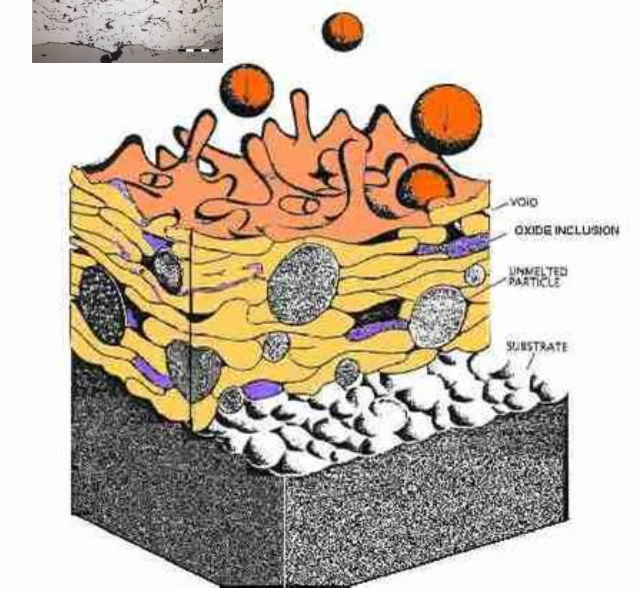
- Molten aluminum strikes a surface at a high velocity:
  - An exothermic reaction.
  - Increased degree of diffusion bonding.

- The result:
  An extremely hard and flexible microstructure.



Technical

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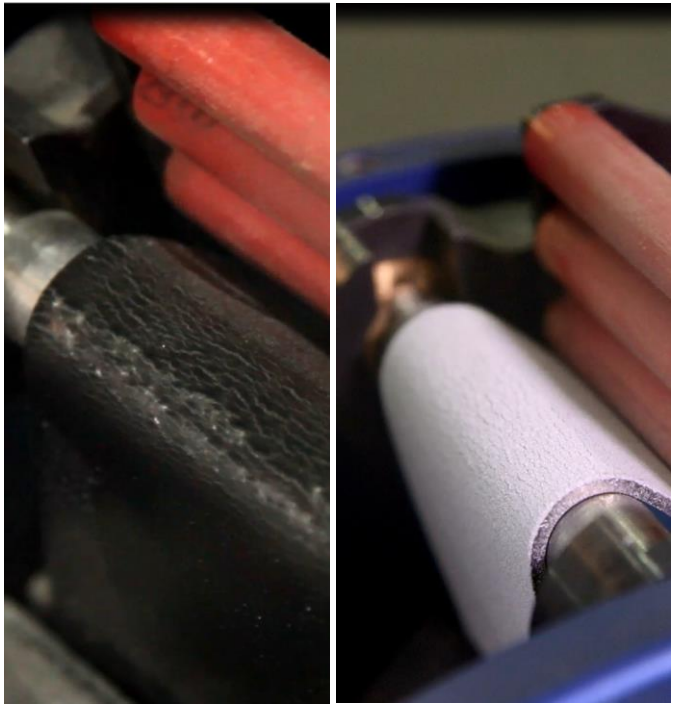
- Surface preparation :
  Grit–blasting Sa 2 ½
- Dry film thickness 200-400 microns.
- Adhesion tests 12 Mpa minimum

Hard but flexible

- 1 mohs below diamond.
- Steel deforms, TSA follows
- Resists under severe stress.
- TSA dents and does not crack.



TSA combats corrosion

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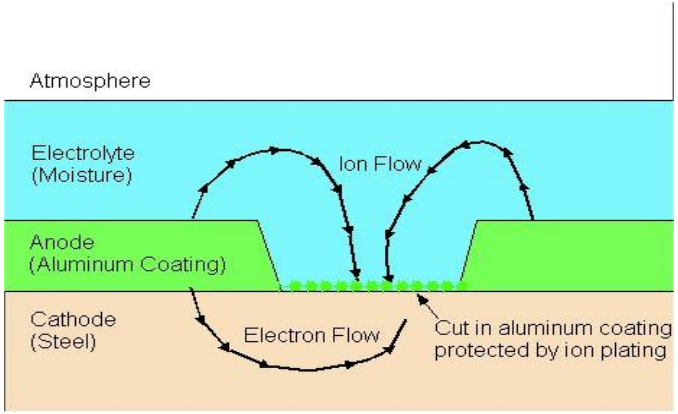
- An improbable cause...
- TSA provide corrosion protection by excluding the environment and acting as a barrier coating.
- Unlike typical barrier coatings TSA also provides sacrificial anodic protection.



Suitable for extreme conditions

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- Sun and sand storm resistant.
- Sea water resistant.
- Suitable for buried pipelines.
- Temperature resistant up to 600^{o}C.
- PH resistant between 4 – 9.

Perfect for pipelines under Insulation

Environmental friendly

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- Cleaner and safer production process.
- Sustainable due to life time protection.
- No chemical waste.

Summary

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- TSA has unique properties:

  - ✓ Corrosion protection 50 years and more
  - ✓ Dry film thickness 200-400 microns
  - ✓ Hardness 1 Mhos below diamond
  - ✓ Resistant to extreme conditions
  - ✓ Environmental friendly

Common way of TSA application

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- Hand application:
  - Heavy guns
  - High temperatures
  - Dust
  - Only a small application stripe
  - Precise overlapping required

State of the art TSA application

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- MCS Robotized process:

  - ✓ Constant high quality
  - ✓ High application capacity
  - ✓ High level of safety
  - ✓ High skill jobs
  - ✓ Easy scalable

Production Plant Jubail

MODERN CORROSION SOLUTIONS COMPANY LTD

- Jubail Industrial City
  Support Industrial Area No.3
  Street No. 114
  Al Jubail 35729

TSA

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- **C**omfort
- **U**nder
- **I**nsulation

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Questions & Answers

By the management of MCS

More information www.mcscoating.com

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