

Next coatings for Oil & Gas Downstream changing needs





Founded in
1866



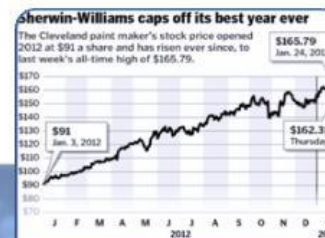
Coatings
Manufacturer



Sustainability
Focused



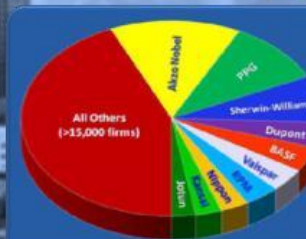
About Us



Turnover
>10 billion (2013)



>34,000
Employees



Top 3 Coatings
Company



Sell to >115
countries



CLEVELAND HEADQUARTERS

About You

A typical day at “office”

- Permanent fight to cut downtime
- Conflicting job fronts during turnaround stoppage
- Aggressive environments
- Ever escalating safety and environmental concerns
- Mounting service temperatures and pressures
- Life extension requirements for old assets
- Changing needs...

Your Needs

How challenges translate in needs

- You need to protect your assets
 - Simpler
 - Safer
 - Faster
 - Better



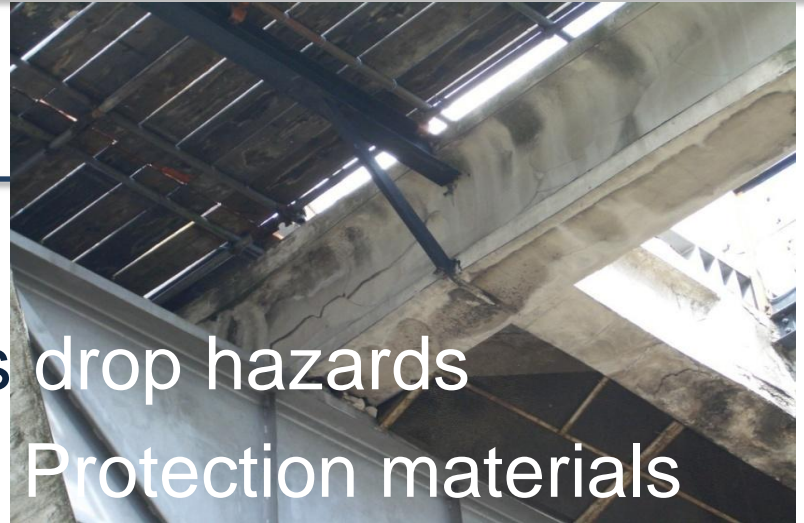
Your Needs: **Simpler**

- One stop shop
 - Use solution providers able to serve all needs
 - Protective coatings (PC)
 - Linings
 - Passive Fire Protection (PFP)
 - Cryogenic Spillage Protection (CSP)
 - Corrosion Under Insulation Protection (CUI)
- Clarity:
 - Minimize number of different products needed
 - Maximize use of globally available formulas



Your Needs: **Safer**

- Avoid cracked cementitious drop hazards
- Use durable Passive Fire Protection materials
- Reduce use of solvent-containing flammable & harmful materials
- Minimize the use of abrasive blast
- Cope with cryogenic spillage hazards if present (LNG)



Your Needs: **Faster**

- Reduce downtime
 - Reduced number of coats
 - Compatibility with competing works
 - Ability to apply over hot or condensing in-service steel
 - Faster curing to service
 - Easier & faster inspection
- Cope with wet & cold weather
 - Extended season
 - Extended shift working hours



Your Needs: **Better**

- Extended durability
 - Minimizing future down time
 - Minimizing structural risks
- Lower risk of unexpected premature coating failure
 - Adapting to weather, surface preparation & applications methods
 - Durable & maintenance-free PFP
- Edge retention & flexibility
- Better protection under insulation
- Cope with High Temp High Pressure processes (HTHP)

CUF: Corrosion under fire proofing



CUI: Corrosion under insulation



Your Needs: and what about **Cost**?

- Coating materials share of total applied cost
 - Maintenance: < 15% of total cost/m²
 - Shop new fabrication: < 25 % of total cost/m²
- Corolary
You drive costs down by doing it
Faster, Safer, Simpler & Better

Need to check the
above ratios

Our Solutions

- How we do it

- **Simpler**
- **Safer**
- **Faster**
- **Better**



Simpler

Making it Simpler



- Oil & Gas Product Guide
 - One stop shop: Coatings, Linings, PFP, CUI, CSP
 - Streamlined product list
 - Clearly stated product features & application ranges
 - Global products available for all categories
 - Multipurpose formulas to reduce number of products

Making it Simpler

The right balance

- Proposing innovative products...
 - Every year, a new set of innovations
 - Helping you to capture value in new directions
- ...while providing all mainstream work horses
 - Global zinc rich primers, epoxies, top coats
 - Key approvals

Making it Simpler

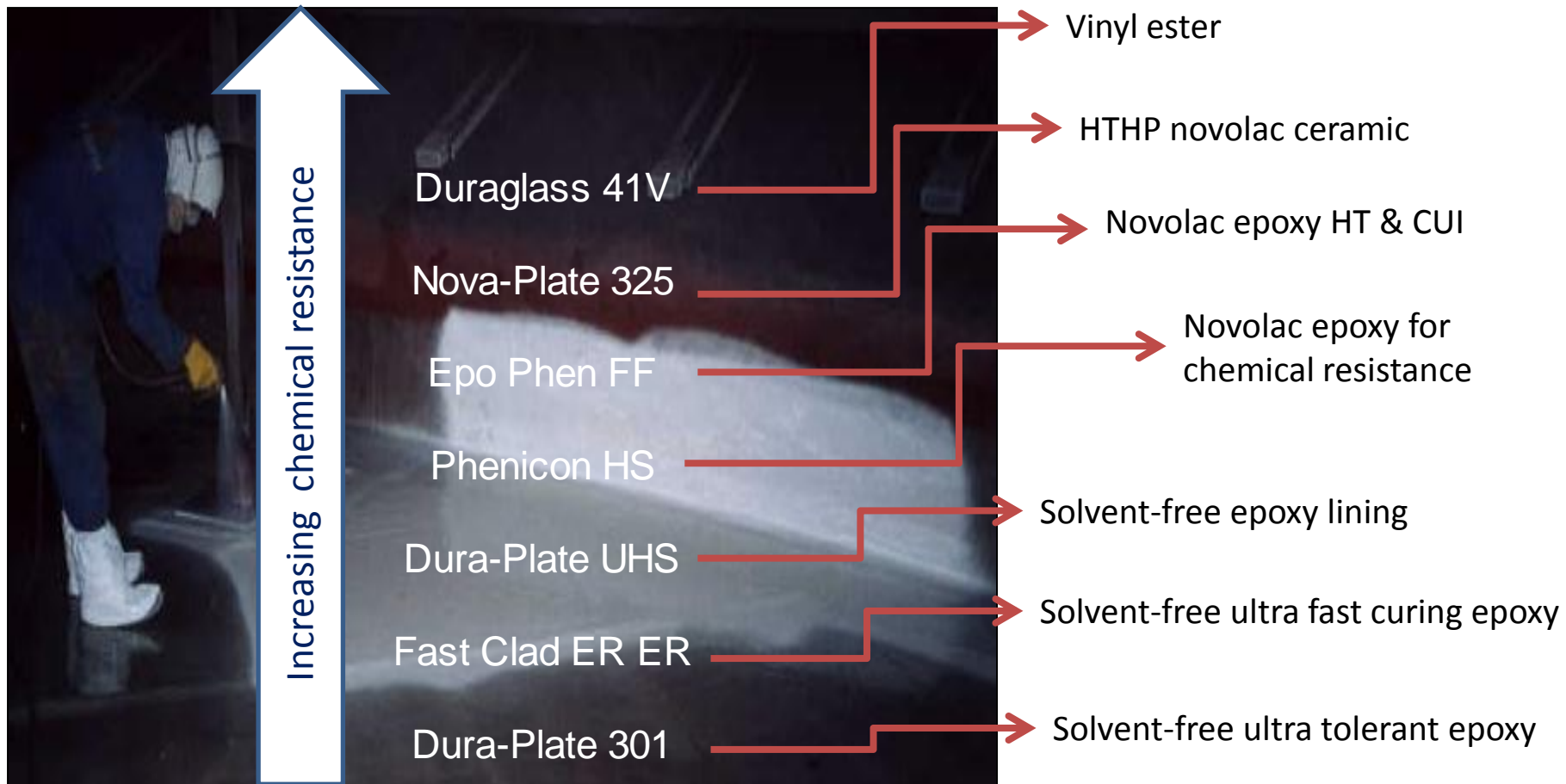
Multipurpose formulations examples

- Macropoxy 646 & Macropoxy C88
 - Multipurpose
 - Maintenance or new steel
 - Primer, mid coat or finish
 - Atmospheric or immersion
 - Easy
 - 1:1 mix
 - Tintable
 - Brush or airless spray



Making it Simpler

Complete & streamlined: the lining portfolio



Safer

Making it Safer

Efficient and durable PFP solutions

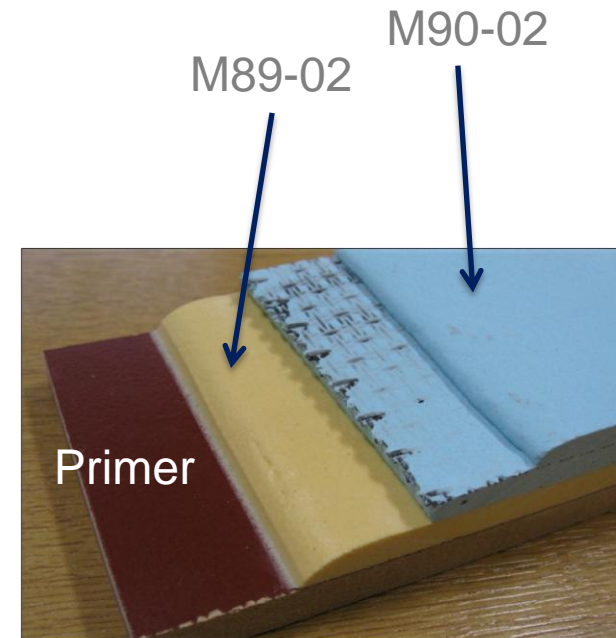
- Firetex M90-series
 - Epoxy toughness & light weight
 - UL1709 & Norsok M501 approvals
 - Type approved ABS, Lloyds, DNV
 - Pool & jet fire approved
 - Passed 15 years immersion in sea & fresh water
 - The best loadings in the market
 - Extended Hp/A range for flexible designing



Making it Safer

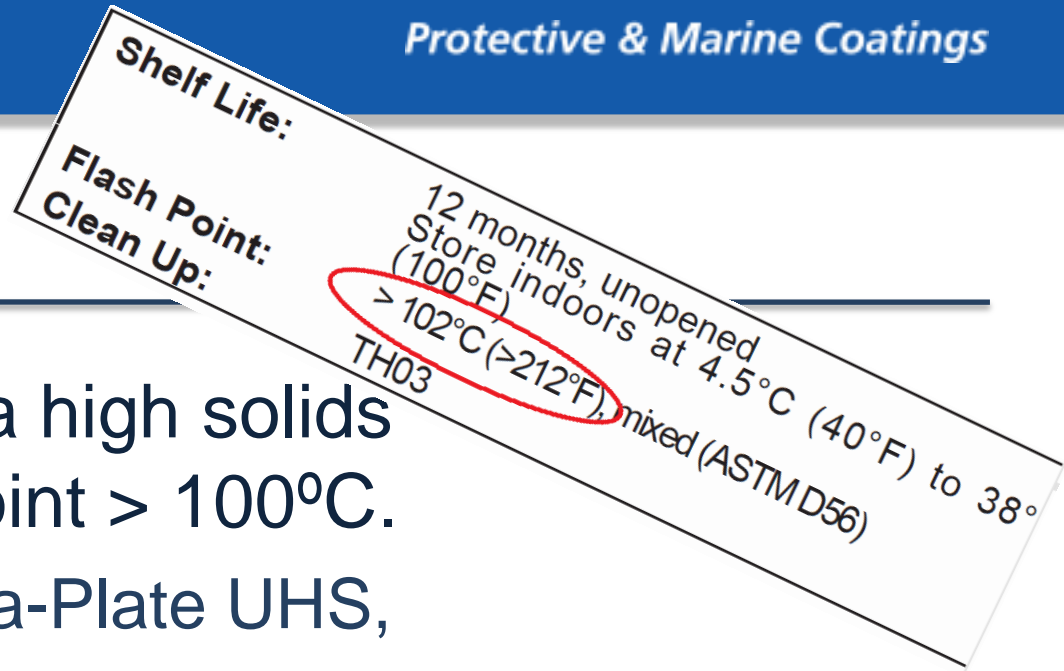
Effective CSP protection

- Firetex M89-series
 - Insulation for CSP
 - Can be combined with M90 PFP
 - Used at key CSP/PFP research initiatives to develop testing protocol (with oil & gas and EPC partners)



Making it Safer

- Extended offer of ultra high solids products with flash point $> 100^{\circ}\text{C}$.
 - Dura-Plate 301, Dura-Plate UHS, Fast Clad ER
- Minimize the use of abrasive blast
 - Dura-Plate 301-series for high durability over UHP



Faster

Making it **Faster**

- Single coat maintenance primers
 - Dura-Plate 301: 300 microns DFT, also by brush
 - Epigrip M922M: 500 microns DFT by brush
- Single coat finish with ultra hiding power
 - Acrolon 1850 isocyanate-free, 75-200 microns by spray or brush
- Single coat linings / coatings: 200-1000 microns DFT
 - Dura-Plate UHS, Fast-Clad ER, Epigrip M922



Making it **Faster**

Ultra tolerant solutions for around the clock painting

- **Dura-Plate 301** solvent-less + UHP
 - Compatible with wet surfaces
 - No dew point restrictions
 - Applicable over 80°C steel
 - 301W winter grade (0°C)
 - Compatibility with other job fronts
 - No flamability risk
 - No flying abrasive
 - Easier to cut, weld & assemble in the vicinity



Making it **Faster**

Ultra fast curing solutions

- **Fast-Clad ER**

- Single coat 500-1000 microns tank lining
- Crude & most refined commodities
- OAP technology saves inspection time
- 1 hour dry to touch
- 24 hours to service (crude)
- 24 hours to immersion service
- Plural airless application



Making it **Faster**

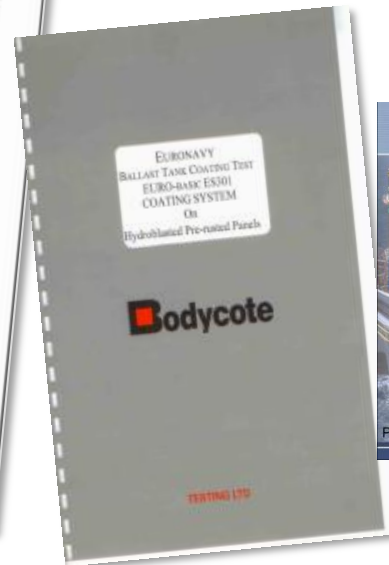
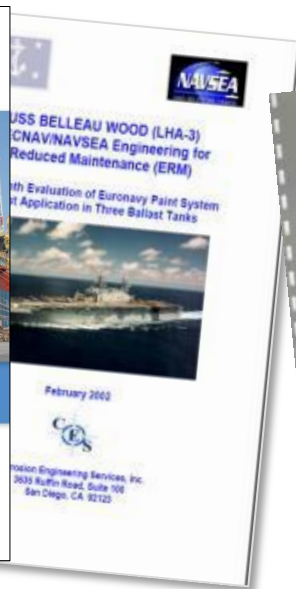
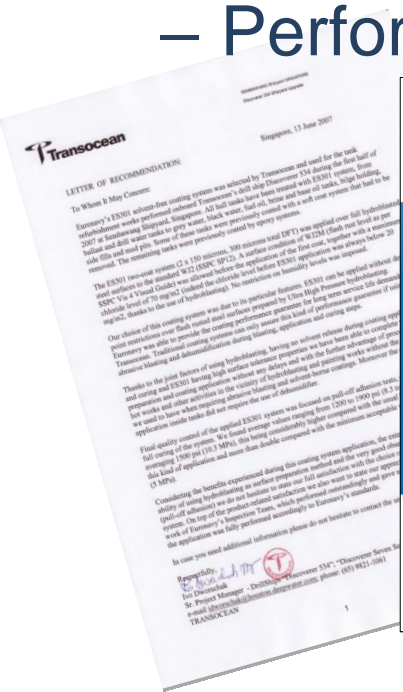
In service wet-in-wet CUI coating application

- **Heat-Flex Hi-Temp 1200**
 - Service up to 650°C
 - Can be applied over steel at 260°C
 - No need to stop operation
 - Easy spray, perfect film
 - Allowing wet-in-wet over hot steel
 - 250 microns DFT in one go



Better

- Extended durability
 - Approvals: UL1709, Norsok, ISO 20340, etc
 - Track record: extensive for all key systems
 - Performance evidence: customer feedback



Making it Better

Epoxy PFP for maintenance-free durability

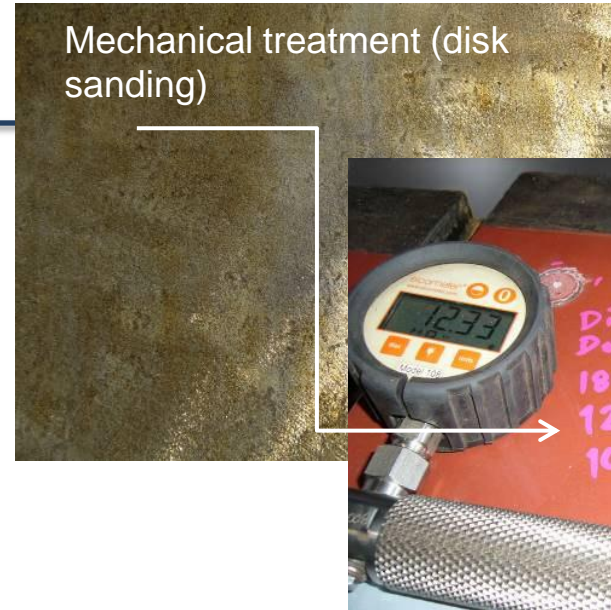
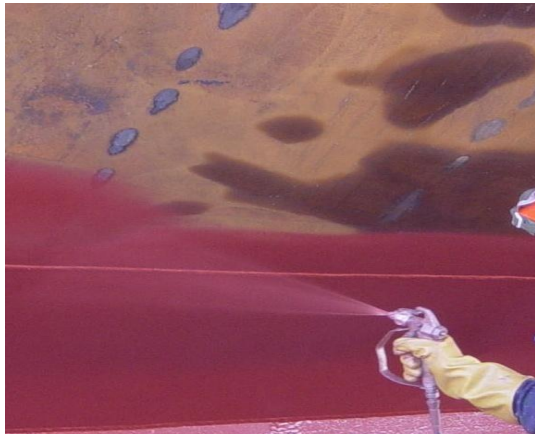
- Cementitious PFP materials tend to be phased out by the Oil & Gas industry
- Firetex epoxy intumescent PFP alternative:
 - Provides durability
 - Maintenance-free without top coat
 - Resistant to absorption & chemical attack
 - Provides corrosion protection
 - Lightweight saving structural design and shipping costs
 - Long service life with little to no maintenance



Making it Better

Reducing risk of failure

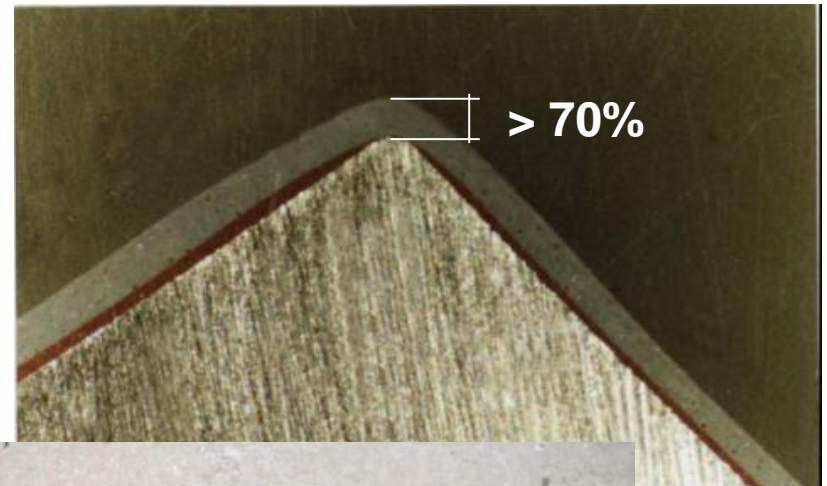
- Dura-Plate 301
 - tolerating low profile
 - tolerating wet surfaces
 - tolerating flash rust
 - Steel Tank Institute Product of the Year 2009



Making it Better

Reducing risk of failure

- Edge retention & flexibility
 - Fast-Clad ER
 - Dura-Plate UHS
 - Dura-Plate 301



Making it Better

Next generation CUI protection

- Heat-Flex Hi-Temp 1200
 - Can be applied over hot steel (<260°C)
 - Surface tolerant
 - “Generation 2”: beats earlier generation
 - Better performance
 - Higher solids/lower VOC's
 - Faster dry
 - Ambient cure
 - Higher mechanical resistance



Conclusion

- It is possible to protect your assets
 - Simpler
 - Safer
 - Faster
 - Better



Thank you

Questions?

