18” CA MAU Riser at Bunga Raya
Track record 2017

Location of application
Malaysia

Products/system used
Intergard® 269, Chartek® 7, Interthane® 990

Project owner
Petro Vietnam Gas CA MAU Company

Applicator

Fabricator
Repsol Oil & Gas Malaysia Limited

ISO12944 environment
C5M

Project size
10m²
Baronia BNCPP-B bridge platform

Track record 2017

Location
Pasir Gudang, Johor, Malaysia

Products/system used
Bridge structure: Interzinc® 52, Intergard® 475HS, Interthane® 990
Piping: Interzinc 22, Intertherm® 50, Intertherm 875

Applicator/fabricator
Malaysia Marine Heavy and Engineering Sdn Bhd

ISO12944 environment
C5-M

Project size
4,200m²
Besar A Wellhead Platform
Track record 2017

Products/system used

1A Interzinc 52, Intergard 475HS, Interthane 990  
1C Interseal 670HS, Intergard 670HS, Interthane 990  
2A Interzinc 52, Intergard 475HS  
3B Interzone 505, Interzone 505  
4B Interzone 505, Interzone 505  
5A (1) Interzinc 22, Intertherm 875, Intertherm 875  
5A (2) Intertherm 50, Intertherm 50  
6A Interseal 670HS, Interthane 990  
7A (1) Interseal 670HS, Interthane 990  
7A (3) Intertherm 50, Intertherm 50  
16A Interline 850, Interline 850  
16B Interline 850, Interline 850, Interline 850

Location
Pasir Gudang, Johor, Malaysia

Applicator/fabricator
Malaysia Marine Heavy and Engineering Sdn Bhd

Carbon Steel Design Temperature < 110°C Non Insulated in the Atmospheric Zone - Initial Painting
Carbon Steel Design Temperature < 110°C Non Insulated in the Atmospheric Zone - Maintenance Painting for Power Tool Cleared Surface
Carbon Steel Design Temperature < 110°C Insulated in Atmospheric Zone - Initial Painting
Offshore Platform Decks (including primary and secondary structures) - Initial Painting and Maintenance Painting (Alternative)
Splash Zone and Spray Zone - Initial Painting and Maintenance Painting (Alternative)
Carbon Steel Design Temperature > 110°C (Insulated and Non-Insulated) in Atmospheric Zone - Facilities with surface temperature 110 - 250°C
Carbon Steel Design Temperature > 110°C (Insulated and Non-Insulated) in Atmospheric Zone - Facilities with surface temperature 250 - 450°C
Galvanized Steel - Initial Painting
Stainless Steel - Non insulated facilities operating < 110°C
Stainless Steel - Insulated and non-insulated facilities operating 110 - 600°C
Diesel - Roof and Shell plate Up to 60°C
Diesel - Bottom plate Up to 60°C

ISO12944 environment
C5-M

Project size
16,000m²
EPCC F12 Topside
Track record 2017

Location
Pasir Gudang, Johor, Malaysia

Products/system used
Chartek® 7

Applicator/fabricator
Malaysia Marine Heavy and Engineering Sdn Bhd

ISO 12944 environment
C5-M

Project size
350m²

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Statoil Oseberg UWHP
Track record 2017

Location of application
The Netherlands

Owner
Statoil

Applicator
DCS

Products/system used
Carbon steel topside structure -
TSZ metallized (25,000m²)
Intergard® 269 @ 40μm (2 mils)
Interplus® 356 @ 125μm (5 mils)
Interfine® 1080 @ 60μm (3 mils)

Carbon steel jackets (1,281m²)
Interzone® 3507 @ 200μm (8 mils)
Interzone 3507 @ 150μm (6 mils)

Carbon steel jackets (1,394m²)
Interzone 1000 @ 750μm (30 mils)
Interzone 3507 @ 750μm (30 mils)
STB 1 Barge
Track record 2016

Location of project
Floating Dry Dock, Bibiheybat, Baku, Azerbaijan

Products/system used
Topsides areas, above waterline to main deck, open deck - 4,237 m²
- Primer - Intershield® 300 @ 175μm
- Mid coat - Intergard® 263 @ 100μm
- Top coat - Interthane® 990 @ 50μm

Underwater area below waterline including flat bottom and sea chests, dielectric shields areas around ICCP - 10,888 m²
- Epoxy filler - Intergard 821 @ 6,000μm
- Primer - Intershield 300 @ 175μm
- Second coat - Intergard 263 @ 100μm
- Third coat - Intersmooth® 360SPC @ 125μm
- Top coat - Intersmooth 360SPC @ 125μm

Ballast tank and compartments (repair) - 1,057 m²
- First coat - Intershield 300 @ 160μm
- Second coat - Intershield 300 @ 160μm

Project owner
BP

Applicator
Caspian Shipyard Company and SOCAR Cape

ISO12944 environment
C5M

Project size
16,182 m²
P74 Topsides Fire Protection

Track record 2016

<table>
<thead>
<tr>
<th>Location of project</th>
<th>Project owner</th>
<th>ISO12944 environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Petrobras</td>
<td>C5-M</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Products/system used</th>
<th>Applicator/Fabricator</th>
<th>Project size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chartek® 7</td>
<td>Estaleiros do Brasil (EBR)</td>
<td>17.5 tonnes</td>
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</tbody>
</table>

www.international-pc.com
pc.communication@akzonobel.com
Wild Well Inc
Blow Out Preventer (BOP)

Track record 2010

Location of project
Angola

Products/system used
Interseal® 670HS x 3 coats
@ 4-8 mils (100-200μm) DFT

Project owner
Wild Well Control Inc.

Applicator
Quality Product Finishing, Inc

Fabricator
National Oilwell - Texas Oil Tools

ISO12944 environment
C5-M

Project size
Blow Out Preventer 6m tall by 2.5m wide (20’x 8’) for use in sub sea wells

www.international-pc.com
pc.communication@akzonobel.com
Location of project
Alice, Texas, USA

Products/system used
Area 1 - Entire rig coated with 2 coats of Intercure® 200HS @ 4-6 mils per coat
Topcoat Interthane® 990 @ 2-3 mils

Area 2 - Interior of mud tanks Interzone® 505 abrasion resistance

Plant type
Land based drilling rig

Project owner
Precision Drilling

www.international-pc.com
pc.communication@akzonobel.com
Yemen LNG Terminal

Track record 2008

Location of project
Balhaf, Malaysia

Products/system used
Interzinc® 52, Chartek® 1709, Interthane® 990, Intergard® 269, Interzone® 954

Applicator
Muhibbah Engineering (M) Bhd

ISO12944 environment
Fire Protection

Surface preparation
SSPC-SP5

Total volume
130,100 litres (34,300 gals)

Total area
21,000m² (226,000 ft²)

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Cobra Castor Fixed Platform

Track record 2010

Location of project
Spain

Products/system used
Area 1 - 3 level decks
Interzone® 485
Interthane® 990HS

Area 2 - Main structure
Interzinc® 52
Intergard® 345UHS
Interthane 990HS

Area 3 - Fire wall
Interzinc 52
Chartek® 7

Area 4 - High heat pipes
Intertherm® 751 CSA

Project owner
Cobra Instalaciones y Servicios and Noble Denton

Applicator/Engineer
Kiewit Offshore Services Limited, OSD Engineering and local contractors

ISO12944 environment
C5-M

Surface preparation
SSPC-SP10

Total volume
6,056 litres (1,600 gals)

Total area
8,589m² (92,460ft²)

AkzoNobel prides itself in utilizing innovative products that meet and exceed technical and environmental requirements
Akpo FPSO
Track record 2007

Products/system used

- Decks (58,000 m²)
  - Intershield® 300 (200μm)
  - Intershield 300 (200μm)
  - Internationals GMA non-skid aggregate
  - Intergard® 740 (75μm)
- Structural steel (175,000 m²)
  - Interzinc® 52 (75μm)
  - Intergard 475HS (200μm)
  - Interthane® 990 (75μm)
- Passive fire protection (23,000 m²)
  - Intergard 269 (50μm)
  - Chartek® 7
  - Intergard 263 (50μm)
  - Interthane 990 (75μm)
- Heavy duty decking (27,000 m²)
  - Interzinc 52 (75μm)
  - Interzone® 1000 (500μm)
  - Internationals GMA non-skid aggregate
  - Interthane 990 (75μm)
- High temperature valves
  - Intertherm® 751CSA (175μm)

- Passive fire protection for vessels
  - Intertherm 7050
  - Chartek 7

Project owner
- Total

Fabricator
- HHI, Korea

ISO 12944 environment
- C5-M

Total area
- 300,880 m² (3,238,645 ft²)

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pc.communication@akzonobel.com
Intershield 300 was used to protect over 145,000m² (1,560,767ft²) of steel including the water ballast, cargo, slop tanks, heli-deck and mooring area. Intershield 300 was applied onto pitted steel in the tanks after abrasive blasting to Sa 2.5.

On inspection after seven years in service less than 1.5% corrosion was seen in the slop, cargo and water ballast tanks. The Falcon FPSO has operated in the Yoho field off Nigeria with a 99.6% uptime record.

Focus product: Intershield® 300  
Year of project: 2000  
Location: Keppel Tuas Shipyard, Singapore  
Type of project: FPSO Conversion  
Project owner/lesor: SBM Offshore  
Operator: ExxonMobil

www.international-pc.com
pc.communication@akzonobel.com
Nexen Buzzard
Track record 2004 - 2010

Location of project
North Sea, UK

Products/system used
Decks (16,000m²)
Interzone® 954 (500μm)
Interzone 954 (500μm)
International® non-skid aggregate
Intergard® 740 (75μm)

Structural steel >120°C (2,000m²)
Intertherm® 50 (40μm)

Structural steel (112,000 m²)
Interzinc® 52HS (75μm)
Intergard 475HS (200μm)
Interfine® 629HS (60μm)
Passive Fire Protection (24,000m²)
Chartek® 7

Project owner
Nexen

Fabricator
Heerema, Hartlepool, UK
BiFab, Fife, UK
Dragados Offshore, Cadiz, Spain

ISO12944 environment
C5M (all systems meeting NORSOK M-501)
**Location of project**
Singapore and Brazil

**Products/system used**
Area 1 - Outer hull, water ballast tanks and cargo oil tanks (216,000m²)
- Intershield® 300 (160μm)
- Intershield 300 (160μm)

Area 2 - Sea chests (850 m²)
- Intershield® 300 (160μm)
- Intersleek® 737 (175μm)
- Intersleek 970 (200μm)

Area 3 - High temperature valve repair (190 m²)
- Intertherm® 751 CSA (175μm)

**Project owner**
SBM Offshore

**Applicator**
Keppel Singapore and Brasfels Brazil

**ISO12944 environment**
C5-M

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Petrobras P-57 FPSO

Track record 2010
The Hutton was the first ever tension leg platform in the world. It was operated by Conoco for nearly 20 years on the Hutton oil field in the North Sea. At its peak it produced more than 110,000 barrels of oil a day.

A coating system was required for the splashzone that would provide a minimum of 20 years anti-corrosion protection in the harsh North Sea.

**Area inspected after 29 years: less than 1% corrosion on painted tubular sections**

After decommissioning a visual inspection was carried out in August 2011. The original yellow Interzone 1000 in the splashzone is in excellent condition after almost 30 years in a C5-M environment. The bottom section of the Hutton TLP was coated with a holding primer and relied on an impressed current protection system for the submerged section and pontoon. Having 33% non-micronised glass flake in the dry film is what makes Interzone 1000 unique and helps provide the outstanding barrier protection seen on the Hutton TLP.

“It is clear that after nearly 30 years in service the high loaded glass flake epoxy is still performing very well on the painted tubular splashzone sections of the Hutton TLP hull. Estimated corrosion is less than 1% over the coated splashzone. Even areas subjected to abrasion from topside equipment such as pumps, ropes and chains are in excellent condition. For the Hutton we chose the high loaded non-micronised glass flake epoxy over polyester glass flake technology for a number of reasons. One of those was that the glass flake epoxy was much easier to apply.”

“After almost 40 years of offshore surveying in the North Sea, I would consider a glass flake epoxy, as used on the Hutton TLP, to offer the best corrosion protection for the splashzone of offshore assets.”

Chris Jordan, Coatings Specialist for Conoco during construction of the Hutton TLP

---

**Focus product:** Interzone® 1000 (3×500μm)

**Year of project:** 1982

**Location:** North Sea, UK

**Type of project:** Tension Leg Platform (TLP)

**Project owner:** Conoco

**Applicator/fabricator:** Highland Fabricators, UK

**Project size:** 40,000 litres

12,600m², over Sa 2.5
Baronia Living Quarters

Track record 2008

Location of project
Malaysia, Sarawak Offshore

Products/system used
Area 1 - Topside (Atmospheric Zone)
Interzone® 954 (350μm)
Interthane® 990 (50μm)

Area 2 - Splash Zone and Jacket Legs
Interzone 954 (500μm)
Interzone 954 (500μm)

Project owner
Petronas Carigali

Applicator
Ropetech

ISO12944 environment
C5-M

Application method
Abselling and airless spray

Total area
30,000m² (322,917ft²)
DF1-1 Gas Field Development

Track record 2005

Location of project
China

Products/system used
Structural steel
Interzinc® 52 (75µm)
Intergard® 475HS (200µm)
Interthane® 990 (75µm)

Under insulation up to 230°C
Interzone® 228 (120µm)
Intertherm® 228 (120µm)

Splashzones
Interzone 954 (350µm)
Interzone 954 (350µm)

Deck and Helideck
Interzinc 52 (75µm)
Interzone 505 (500µm)

ISO 12944 environment
C5-M

Total area
150,000m² (1,614,586ft²)

Project owner
CNOOC

Applicator/Fabricator
COOEC/CSE

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pc.communication@akzonobel.com

AkzoNobel
Helang Fixed Platform

Track record 2006

**Location of project**
Pasir Gudang, Malaysia

**Products/system used**
- Structural Steel
- Interzinc® 52 (75μm)
- Intergard® 475HS (200μm)
- Interthane® 990 (75μm)

**Decks**
- Interzone® 2000 (500μm)
- Interzone 2000 (500μm)

**Project owner**
Nippon Oil

**Applicator/Fabricator**
Mse Pasir Gudang

**ISO12944 environment**
C5-M

**Total area**
40,000m² (430,556ft²)

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AkzoNobel
Maari WHP
Track record 2008

Location of project
New Zealand

Products/system used
Jacket immersed steel (500m²)
Interzone® 485 (2,000μm)

Splashzone and non-skid deck (3500m²)
Interzone 1000 (1,000μm)

Passive Fire Protection for Wellbay (380m²)
Interzinc® 22 (50μm)
Intergard® 269 (40μm)
Chartek® 7
Interthane® 990 (75 μm)

Project owner
OMV

Applicator
Kencana, Malaysia

ISO12944 environment
C5-M

www.international-pc.com
pc.communication@akzonobel.com
Marathon Alba Living Quarters shelter

Track record 2009

Location of project
USA and Equatorial Guinea

Products/system used
Intergard® 251 (75μm)
Chartek® 7
Interseal® 670HS (100μm)
Interthane® 990 (75μm)

Project owner
Marathon Oil Corporation

Applicator
Atlantic Scaffolding

ISO12944 environment
C5-M

Total volume
13,860 litres (3,661 gals)

Total area
3,200m² (34,445ft²)

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Montara WHP Offshore Platform

Track record 2008

Location of project
Thailand and Australia

Products/system used
Decks (12,000 m²)
Intergard® 251 (50μm)
Interzone® 485 (750μm)
Interfine® 629 (75μm)
Galvanised (1,000 m²)
Interprime® 160 (pretreatment)
Interseal® 670HS (125μm)
Interfine® 629 (75μm)

Project owner
PTT Exploration & Production Public Company Limited

Applicator
Deborah Services, Australia & Clough, Thailand

ISO12944 environment
C5-M

Total volume
35,000 litres (9,246 gals)

Total area
12,000 m² (129,167 ft²)
Perdido Spar
Track record 2009

Location of project
Gulf of Mexico, USA

Products/system used
Structural steel
Interzinc® 52 (75 μm)
Intergard® 475HS (200 μm)
Interthane® 990HS (75 μm)

Passive fire protection
Chartek® 7

Project owner
Shell

Applicator
Kiewit, USA

ISO12944 environment
C5-M

Total volume
82,520 litres (21,799 gals)

Total area
5,400m² (58,125ft²)
Piltun B, Sakhalin Platform

Location of project
Korea

Products/system used
Weather Protection steel:
- Interzinc® 52 (75μm)
- Intergard® 475HS (200μm)
- Interthane® 990 (75μm)

Light duty decks:
- Intergard 269 (80μm)
- Interzone® 505 (400μm)

Heavy duty decks:
- Intergard 269 (80μm)
- Interzone 1000 (1,000μm)

Passive Fire Protection:
- Intergard 269 (80μm)
- Chartek® 7
- Intergard 475HS (100μm)
- Interthane 990 (75μm)

Stainless steel:
- Intergard 400 (150μm)
- Intergard 475HS (200μm)
- Interthane 990 (75μm)

Project owner
Sakhalin Energy Investment Company (SEIC)

Applicator
SHI, Korea

ISO12944 environment
C5-M

Total area
150,200m² (1,616,739ft²)
Peng Lai 19 Offshore Platforms
Track record 2009

Location of project
China

Products/system used
Splashzone (5,400 m²):
  Interzone® 485 (3,000μm)
  Interzone 485 (1,500μm)
Riser supports (1,500 m²):
  Interzone 505 (600μm)
  Interthane® 990 (75μm)
Decks and Walkways (3,700 m²):
  Interzone 505 (600μm)
  Galvanised steel (900 m²):
  Interseal® 670HS (150μm)
  Interthane 990 (75μm)
Passive Fire Protection (10,800 m²):
  Chartek® 7

Project owner
CNOOC/ConocoPhillips

Fabricator
COOEC/BOMSEC

ISO12944 environment
C5-M

Total area
33,100 m² (356,285 ft²)

wwwinternational-pc.com
pc.communication@akzonobel.com
PB-KU-A fixed platform

Track record 2006

Location of project
Spain

Products/system used
Structural steel (3,030m²)
- Interzinc® 52HS @ 75μm
- Intergard® 475HS @ 175μm
- Interfine® 878 @ 75μm

Risers (100m²)
- Interzone® 485 @ 3,000μm

Project owner
PEMEX

Fabricator
Dragdos, Spain

ISO12944 environment
C5-M

Total area
32,100m² (345,522ft²)
FSRU Toscana
Track record 2011

Location of project
Dubai, India

Products/system used
Hull below the waterline
(25,090 m²)
Intershield® 300 @ 150μm
Intershield 300 @ 150μm
Intershield 300 @ 150μm

Hull above the waterline
(17,432 m²)
Intershield 300 @ 150μm
Intershield 300 @ 150μm
Intershield 300 @ 150μm
Interthane® 990 @ 75μm
Fenders (742 m²)
Interzone® 1000 @ 75μm
Interzone 1000 @ 75μm

LNG Domes and topside modules (4,330 m²)
Interseal® 670HS @ 100μm
Chartek® 7
Interthane 990 @ 75μm

Project owner
OLT Offshore

Yard/Fabricator
Drydocks World-Dubai

ISO12944 environment
C5M

Total area
80,508m² (866,581ft²)
**Pazflor FPSO**

**Track record 2010**

**Products/system used**
- Water Ballast Tanks and Crude Oil Tanks (350,000 m²)
  - Intershield® 300 (160μm)
  - Intershield 300 (160μm)
- Decks (58,000 m²)
  - Intershield 300 (200μm)
  - Intershield 300 (200μm)
- International® GMA132
- Intergard® 740 (60μm)

- Passive Fire Protection living quarters and deck modules (23,000 m²)
  - Intergard 269 (50μm)
  - Chartek®
  - Intergard 263 (50μm)
  - Interthane® 990 (75μm)
- Helideck and heavy duty decking (27,000 m²)
  - Interzinc® 52 (75μm)
  - Interzone® 1000 (500μm)
- International® GMA132
- Interthane 990 (75μm)

**Project owner**
- Total

**Fabricator**
- DSME, Korea

**ISO12944 environment**
- C5-M

**Project size**
- 300,880m² (3,238,645ft²)

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pc.communication@akzonobel.com
CCI Borco Piping

Track record 2011

Location of project
Bahamas

Products/system used
Interzinc® 52 @ 50-75μm (2-3 mils)
Intercure® 200HS @ 125-175μm (5-7 mils)
Interthane® 990 @ 50-75μm (2-3 mils)

Project owner
CCI Borco

Engineer
Paloma Energy Consultants

Applicator/Fabricator
Acadian Contractors

ISO12944 environment
C5M

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pc.communication@akzonobel.com

Acadian Contractors
Chevron Jack St. Malo
Track record 2011

Location of project
USA

Products/system used
Area 1 - Valve skid
Interzinc® 22 @ 50-75μm (2-3 mils)
Intergard® 475HS @ 100-150μm (4-6 mils)
Interthane® 990 @ 50-75μm (2-3 mils)

Area 2 - Skid valves
Intertherm® 751CSA @ 100-150μm (4-6 mils)
Intertherm 751CSA @ 100-150μm (4-6 mils)

Project owner
Chevron

Engineer
Mustang

Fabricator/Applicator
Omega Natchiq

ISO12944 environment
C5-M
## Subsea Pipe Bends
### Track record 2011

<table>
<thead>
<tr>
<th>Location of project</th>
<th>Project operator</th>
<th>Fabricator</th>
<th>Area coated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Chevron Australia</td>
<td>Wasco Piping Systems</td>
<td>4,500 litres (1,189 gals)</td>
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<tr>
<td>Products/system used</td>
<td>Interzone® 485</td>
<td>ISO12944 environment C5-M</td>
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</tr>
<tr>
<td>Applicator</td>
<td>Orontide Industrial Services</td>
<td></td>
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</tr>
</tbody>
</table>

The Gorgon Project is operated by an Australian subsidiary of Chevron and is a joint venture of the Australian subsidiaries of Chevron (47.3%), ExxonMobil (25%), Shell (25%), Osaka Gas (1.25%), Tokyo Gas (1%) and Chubu Electric Power (0.417%).

www.international-pc.com
pc.communication@akzonobel.com
Tarpon Project
Track record 2012

Location of project
Malaysia

Products/system used
Area 1: Topside structural steelwork
in atmospheric condition
Interzinc® 22, Intergard® 475HS, Interthane® 990

Area 2: Splashzone area
Intergard® 269, Interzone® 505

Project owner
BC Petroleum

Applicator
Vantage Steel Sdn. Bhd.

Fabricator
Dialog Fabricator Sdn. Bhd.

ISO12944 environment
C5-M

Project size
4 units x 250 tonnes

www.international-pc.com
pc.communication@akzonobel.com

AkzoNobel
Prirazlomnaya Offshore Ice-resistant Platform

Track record 2011

Location of project
Russia

Project owner
Gazprom

General contractor
Sevmash shipyard

Products/system used
Area 1 - Pitted steel repair
Interplus® 356 @ 125μm (5 mils)
Interzone® 954 @ 300μm (12 mils)
Area 2 - Fire protection for bulkheads, piperacks and structural steel
Chartek® 7

ISO 12944 environment
C5-M

Project size
300,000m² (3,229,173ft²)

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pc.communication@akzonobel.com
Stena DrillMAX ICE

Case study 2010

The solution
Intershield 163 Inerta 160 was selected by Stena Drilling to provide ice abrasion resistance for the hull of their ice strengthened Arctic drill ship Stena DrillMAX ICE. Stena Drilling specifically requested Intershield 163 Inerta 160 because of its track record spanning over 30 years in the protection of ice breakers and other polar class marine vessels.

The hull of the DrillMAX ICE has been given the polar class identification of PC-4. This means it can operate year-round in first year thick ice which may include old ice inclusions. The application of Intershield 163 Inerta 160 was performed in conjunction with Korean block stage painting processes at SHI, Korea, with full TSR support from AkzoNobel. The Stena DrillMAX ICE hull was tested in models to ensure operation through ice at 2.2m thickness. The drill ship will be expected to operate for many years to come and Intershield 163 Inerta 160 will provide protection in Arctic waters thanks to its excellent ice slip properties due to its low coefficient of friction in ice.

Intershield 163 Inerta 160 was the first ice abrasion resistant coating to get class society Type Approval and has over 1,300 applications worldwide to date including drill ships and other offshore structures. Intershield 163 Inerta 160 was specifically designed to reduce friction caused by ice abrasion and to minimise the corrosion of hulls operating in ice conditions.

Focus product: Intershield® 163 Inerta 160 (500μm)
Location: Korea
Project owner: Stena Drilling
Applicator: SHI, Korea
Surface preparation: Sa 2.5
ISO12944 environment: C5-M
Project size: 9,800m² (105,486ft²)
PEMEX Chemul Semi-submersible Platform, Maintenance and Repair

Track record 2010

Location of project
Halifax, Nova Scotia, Canada

Products/system used
Intershield® 300, Interthane® 990

Project owner
PEMEX, Mexico

Applicator
MacKinnon & Olding, Smith & McCarthy Painting

Fabricator
Woodside Industries (a division of Halifax Shipyard)

ISO12944 environment
C5M - marine environment

Area coated
Approximately 18,580m² (200,000ft²)
Background
The manifold used in the Jette oil and gas field is a key part of the subsea infrastructure for Det Norske. It will help gather oil and gas from the neighbouring wells and transfer the hydrocarbon fluids to the production pipeline.

The solution
Det Norske’s first ever subsea project on the Norwegian oil and gas shelf was recently completed using Intertherm 3070 from AkzoNobel’s Internationals range, to protect the manifold’s hot pipes. Intertherm 3070 has excellent temperature resistance under seawater immersion and good compatibility with cathodic protection. In addition, Interzone 954 was used to provide an abrasion resistant coating to protect the manifold’s outer frame.

Focus products: Hot pipe work - Intertherm® 3070 (125μm [4.9mils]), Intertherm 3070 (125μm [4.9mils]), Intertherm 3070 (125μm [4.9mils])
Steel protection frame - Intergard® 269 (40μm [1.6mils]), Interzone® 954 (200μm [7.9mils]), Interzone 954 (200μm [7.9mils])

Location: UK
Project owner: Det Norske
General contractor: BiFab
ISO12944 environment: C5-M Im2
Noble Aalen Platform

Track record 2012

Location of project
USA

Project owner
Noble Energy

Engineer
Mustang Engineering

Fabricator/Applicator
McDermott INC

Products/system used
Area 1 - High Impact Deck Coating
Interzone® 485 @ 1250 - 1500μm (50-60 mils)
Interthane® 990HS @ 50 - 75μm (2-3 mils)

Area 2 - Structural Steel
Interzinc® 52 @ 75μm (2-3 mils)
Intergard® 475HS @ 125 - 175μm (5-7 mils)
Interthane® 990HS @ 50 - 75μm (2-3 mils)

Area 3 - Piping
Intertherm® 751CSA @ 150 - 175μm (6-7 mils)
Intertherm® 751CSA @ 150 - 175μm (6-7 mils)

Area 4 - LQ Package
Interzinc® 52 @ 50 - 75μm (2-3 mils)
Chartek® 7 @ 10-12mm (½”)

ISO12944 environment
C-5

Surface preparation
SSPC SP 10 Near White

Total volume
>113,570 liters (30,000 gallons)

Total area
69,680m² (750,000 ft²)

Tonnage coated
10,000 tons
Stone Energy E.W. 305A Deck Project

Track record 2012

Location of project
USA

Project owner
Stone Energy Corporation

Engineer
Tahanie Thibodeaux

Applicator
Nachor Corporation

Products/system used
Interzone® 485 @ 1250 - 1500μm (50 - 60 mils)
Interthane® 990HS @ 50 - 75μm (2 - 3 mils)

ISO12944 environment
C5-M

Surface preparation
UHP- Hb2.5M or Hb2.5L

Total volume
1,520 liters (400 gallons)

Total area
750m² (8,000ft²)

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pc.communication@akzonobel.com
Apache PL 11F Heliport Deck Project

Track record 2012

Location of project
Gulf Of Mexico

Project owner
Apache Corporation

Engineer
Tim Morgan

Applicator
BIS Salamis

Products/system used
Interzone® 485 @ 1250 - 1500μm (50 - 60 mils)
Interthane® 990HS @ 50 - 75μm (2 - 3 mils)

ISO12944 environment
C5-M

Surface preparation
SSPC-SP-10 Near White

Total volume
910 liters (240 gallons)

Total area
465 m² (5,000 ft²)
# Apache E.C. 278 B Waterline Project

**Track record 2012**

<table>
<thead>
<tr>
<th>Location of project</th>
<th>Applicator</th>
<th>Products/system used</th>
<th>ISO12944 environment</th>
<th>Total volume</th>
<th>Total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gulf Of Mexico</td>
<td>BIS Salamis</td>
<td>Interseal® 670HS @ 100 - 125μm (4-5 mils)</td>
<td>C6-M</td>
<td>2,275 liters (600 gallons)</td>
<td>1,395 m² (15,000 ft²)</td>
</tr>
<tr>
<td>Project owner</td>
<td></td>
<td>Interzone® 505 @ 375 - 500μm (15-20 mils)</td>
<td>Surface preparation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apache Corporation</td>
<td></td>
<td>Interthane® 990HS @ 50 - 75μm (2-3 mils)</td>
<td>SSPC-SP-10 Near White</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineer</td>
<td>Tim Morgan</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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Apache G.I. 47AP
Deck Project

Track record 2012

Location of project
Gulf Of Mexico

Project owner
Apache Corporation

Engineer
Tim Morgan

Applicator
BIS Salamis

Products/system used
Interzone® 485 @ 1250 - 1500μm (50 - 60 mils)
Interthane® 990HS @ 50 - 75μm (2 - 3 mils)

ISO12944 environment
C5-M

Surface preparation
SSPC-SP-10 Near White

Total volume
3,785 liters (1,000 gallons)

Total area
1,860 m² (20,000 ft²)

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Petrobras P55 Living Quarters

Track record 2010

Location of project
USA

Project owner
Petrobras

Fabricator/Applicator
Signal International

Engineer
SBM Gusto

Products/system used
Passive epoxy fireproofing system
Interzinc® 52 @ 75μm (3 mils)
Chartek® 7
Interthane® 990 @ 50μm (2 mils)

ISO12944 environment
C5-M

Surface preparation
SSPC-SP10 Near White Metal

Total area
280 m² (3,000 ft²)

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Noble Max Smith
Major Refurbishment
Track record 2012

Location of project
USA

Project owner
Noble Drilling

Fabricator
Signal Shipyard

Applicator
Signal and Cypress Bayou (sub-contractor)

ISO 12944 environment
C5-M

Products/system used
Area 1 - Hull above 24m (79') waterline & underside main deck
Intershield® 300V @ 150 - 200μm (6 - 8 mils)
Intershield® 300V @ S/C - B/S
Intershield® 300V @ 150 - 200μm (6 - 8 mils)
Intershield® 878 @ 50 - 75μm (2 - 3 mils)

Area 2 - Hull below 24m (79') waterline
Interzone® 954 @ S/C sprayed
Interzone® 954 @ 250 - 300μm (10-12 mils)
Interzone® 954 @ 250 - 300μm (10-12 mils)

Area 3 - Heliport deck
Intergard® 251 @ 50 - 100μm (2-4 mils)
Interzone® 505 with 7754D non-slip aggregate @ 250 - 300μm (10-12 mils)
Interfine® 878 @ 50 - 100μm (2-4 mils)

Surface preparation
SSPC-S10 and UHP

Total area
37,220 m² (400,600 ft²) total job

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Marlin A Platform

Track record 2012

Location of project
Victoria, Australia

Project owner
Esso Australia Resources
BHP Billiton Petroleum
(Bass Strait)

Applicator
WGPSN

Products/system used
Chartek® 7
ISO12944 environment
C5-M

Application method
Plural Spray and hand application
(offsite) and hand trowel all site work

Project size
10,000kg (22,046lb)

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At the time of its discovery the Agbami oil and gas field, situated 70 miles off the Nigeria coast, was the biggest of its day. Chevron recognised the only way to develop the field was via an FPSO, moored in 1,463m (4,800ft) of sea water.

Chevron needed 20 year corrosion protection for the mammoth FPSO which would be capable of processing 250,000 barrels of oil a day and storing 2,200,000 million barrels of oil.

During the design, Chevron worked closely with AkzoNobel to select a suitable coating to provide corrosion protection for the outer hull, tanks and topsides. Intershield 300 was selected as a universal primer for all of these areas. This allowed the yard (DSME, Korea) to simplify the coatings procedure and keep up a high level of productivity. The abrasion resistance of Intershield 300 meant it protected the hull top plate whilst the modules and supports were installed.

After 5 years in service Intershield 300 is performing extremely well. Areas of high risk such as edges and welds are still in excellent condition. This can be seen, in particular, on the hull top plate and helideck supports.

"Intershield 300 is performing as expected"

Brent W. Griffin, Coatings and Linings Engineer Chevron
<table>
<thead>
<tr>
<th>Location of project</th>
<th>Project owner</th>
<th>Fabricator</th>
<th>Project size</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>NOV - TOT/ FMC Brazil</td>
<td>NOV</td>
<td>24 sets - 161m² (1,730ft²)</td>
</tr>
</tbody>
</table>

**Products/system used**
2 coats Interseal® 670HS @ 203-254μm (8-10 mils) each

**Applicator**
Quality Product Finishing

ISO12944 environment
Subsea
COP WEST Chirag PDQ Jacket Project

Track record 2012

Location of project
Azerbaijan

Project owner
BP

Applicator
Hertel

Products/system used
System 1 - Intergard® 269 @ 75μm (3 mils), Interzone® 505 @ 750μm (29.5 mils)
System 2 - Interzone® 505 @ 350μm (13.8 mils)
System 3 - Interline® 955 @ 500μm (19.7 mils)

Fabricator
Bos Shelf

ISO12944 environment
Im2 Seawater immersion

Project size
72,705m² (782,590ft²)
Process, compression, water utility (PCWU) platform

Track record 2007

Location of project
Azerbaijan

Products/system used
Area 1 - Topsides Insulated/Uninsulated
Intercur® 202 @ 75μm (3 mils)
Intercur® 420 @ 175μm (6.9 mils)
Interfine® 629 HS @ 50μm (2 mils)
Area 2 - Atmospheric Exposure Carbon/Stainless Insulated/Uninsulated
Intertherm® 228 @ 125μm (4.9 mils)
Intertherm® 228 @ 125μm (4.9 mils)
Area 3 - Light Duty Non Skid Deck System
Intercur® 202 @ 75μm (3 mils)
Interseal® 670 HS @ 400μm (15.7 mils)
Area 4 - Heavy Duty Non Skid
Intercur® 202 @ 75μm (3 mils)
Interzone® 485 @ 3000μm (118 mils)
Intergard® 740 @ 50μm (2 mils)
Area 5 - Duplex stainless steel external surfaces, insulated and uninsulated
Intercur® 202 @ 75μm (3 mils)
Interzone® 505 @ 375μm (14.8 mils)
Interzone® 505 @ 375μm (14.8 mils)
Area 6 - All structural steelwork
Interseal® 670 HS @ 125μm (4.9 mils)
Interzone® 505 @ 375μm (14.8 mils)
ISO12944 environment
C5-M
Total area
100,000m² (1,076,391ft²)

Project owner
AIOC, Azerbaijan International Operating Company

Applicator
Azfen

Fabricator
ATA Consortium (Amec - Tekfen - Azfen)

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Tapis EOR and rejuvenation project

Track record 2013

Location of project
Malaysia

Product/system used
Chartek® 7

Project owner
Exxonmobil Exploration and Production Inc, Malaysia

Applicator
Nomad Engineering

Fabricator
MMHE

ISO12944 environment
C5M

Project size
5,000m² (53,820ft²)

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Second Generation Enhancement, TCO: Phase II expansion of Tengiz Oil Field site

Track record 2014

Location of project
Republic of Kazakhstan, Atyrau region, Tengiz field

Products/system used
Interbond® 1202UPC @ 200μm (8 mils)

Project owner
TCO TengizChevrOil

Applicator
Senimdi Kurylys

ISO12944 environment
ISO 8504 Sa2½

Operating conditions
Under insulation, operating temp: 156ºC (313ºF)

Substrate
Carbon steel

Project size
1,000m² (10,764ft²)

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Martin Linge Jacket

Track record 2014

Location of project
Kværner Verdal, Norway

Products/system used
Interzone® 954, Interzone® 762

Project owner
TOTAL E&P

Total area
10,000m² (107,639ft²)

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AkzoNobel
Shell Draugen Subsea Installation

Track record 2014

Location of project
Norway

Products/system used
Interzone® 954 @ 2x200μm (8 mils)

Project owner
Shell

Compliant with
Norsok M-501 edt.6 System 7B
Butendiek Offshore Wind Farm Substation

Track record 2014

Location of project
German North Sea

Products/system used
Interzinc® 52, Intergard® 475HS,
Interthane® 980, Interzone® 954,
Intershield® 300, Interseal® 670HS,
Interdeck® 500 aggregate,
Interlac® 789, Intergard® 269

Wind farm capacity
288MW

Asset/areas coated
Substation deck, topsides,
foundation substructure

Location of application
Belgium

Fabricator
Iemants

ISO 12944 environment
C5-M

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AkzoNobel
Shah Deniz II Subsea Pipeline Crossing Support

Track record 2014

Location of project
Azerbaijan

Products/system used
Crossing support concrete surface
Intercrete™ 4840, Interseal® 670HS
Steel frame of crossing support
Interzone® 954, Interseal® 670HS

Project owner
BP Exploration

Applicator
Hertel

Fabricator
Bos Shelf

ISO12944 environment
IM2

Project size
35,430 kg of Intercrete™ 4840

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# Crane Barge - Pelicano

## Track record 2013

<table>
<thead>
<tr>
<th>Location of project</th>
<th>Products/system used</th>
<th>Project owner</th>
<th>Applicator/Fabricator</th>
<th>ISO12944 environment</th>
<th>Project size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>Intershield® 300, Interthane® 990</td>
<td>SBM</td>
<td>BSL</td>
<td>C5M/Im2</td>
<td>6,000m² (64,583ft²)</td>
</tr>
</tbody>
</table>

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FPSCO Cdl Modules

Track record 2013

Location of project
Brazil

Products/system used
Interzinc® 52, Interseal® 670HS, Interthane® 990

Project owner
SBM

Applicator
Estaleiro Brasa, Metasa, Brafer, Ebse

Fabricator
Estaleiro Brasa, Ebse

ISO 12944 environment
C5M

Project size
4,500 Ton - 300 KLt

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SSV Victoria M&R

Track record 2014

Location of project
Brazil

Products/system used
Interzone® 954 @ 500µm (20 mils)
Interthane® 990 @ 50µm (2 mils)

Project owner
Ventura Petroleo

Applicator
J. Costa

ISO12944 environment
C5M

Project size
2,000m² (21,528ft²)

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Onshore Mobile Drilling Rig Discovery 612

Track record 2015

Location of project
Republic of Kazakhstan, Atyrau region

Products/system used
Internal (1,100m²) - Interzone® 954
External (21,444m²) - Interseal® 670HS, Interthane® 990

Project owner
KMG Drilling & Services

Specifier/Applicator
Zhigermunaiservice

ISO12944 environment
C5I

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## Location of project
Republic of Kazakhstan, Atyrau region, Tengiz field

## Products/system used
Pipe spools. Controtrace installation DR. Insulation and uninsulation pipes. Interbond® 1202UPC

## Project owner
TCO TengizChevOil

## Specifier
TengizChevOil

## Applicator
SICIM SpA

## ISO12944 environment
C5I

## Total volume
15,000 litres (3,962 gals)
Drill Cutting Pad
Track record 2015

Location of project
Republic of Kazakhstan,
Atyrau region, Tengiz, Korolev field

Products/system used
External - Interplus® 356
Internal - Interline® 850

Project owner
TCO TengizChevrOil

Applicator
ACG (Access Coating Group)

ISO12944 environment
C5I

Total area
External - 450m² (4,844ft²)
Internal - 434m² (4,672ft²)

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Background

The Okha was refitted in 2010 for the Cossack Wanaea Lambert and Hermes Field 135km northwest of Karratha Western Australian coast.

Original coating on the below water area was Intersmooth® 360 the client wish was to move from a copper base antifoul to an Intersleek® material.

AkzoNobel was requested to offer a system which met the client’s requirements and was environmentally suitable to Australian regulators.

The solution

Intersleek 1100SR Fluropolymer was chosen due to its ability for reduce slime and growth build up while the OKHA FPSO was on station.

The Intersleek system was applied first using Intershield® 300 touch up, Intersleek 7180 tie coat @ 100µm, Intersleek 731 link coat @ 100µm, Intersleek 100SR finish coat @ 150µm.

Location of project
Singapore

Products/system used
Intersleek® 7180 @ 100µm (4 mils)
Intersleek 731 @ 100µm (4 mils)
Intersleek 1100SR @ 150µm (6 mils)

Surface preparation
Water wash 3,000 psi, Hard scrap, Hydro jetting 20,000 psi

Project owner
Woodside Energy

Applicator
Sembcorp Marine

ISO12944 environment
C5 High Durability Marine

Project size
22,900m² (105,486ft²)
Woodside FPSO OKHA

Helideck

Products/system used
Interzone® 954, Non Skid Additive GMA131, Interthane® 990

Project size
450m² (4,844ft²)
Oil Major BP was keen to further develop the Azeri-Chirag-Deepwater Guneshli (ACG) oil field which is the largest in the Azerbaijan sector of the Caspian Sea, spanning over 400km². Lying beneath 120m of seawater with its individual “reservoir horizons” located 3km beneath the seabed, the ACG field produces over 600,000 barrels of oil per day. Aside from the offshore production platform, drilling platform and living quarters, the field development also comprises 230km of subsea pipeline.

BP needed to enhance the oil recovery through water and gas injection to balance field pressure, which required additional subsea equipment and connections to the pipelines.

Due to the critical nature and importance of the subsea equipment, BP required a high performance coating solution which would be compliant with NORSOK M-501 System 7C to temperatures above 90°C (194°F). Using a coating system that would not require maintenance was important while, as the project progressed, using a solution that could save project time became vital. Taking these factors into account, the choice was made to use Intertherm 3070, a high performance temperature resistant, phenolic epoxy novolac coating, applied as a two coat system. Designed specifically for the subsea market, Intertherm 3070 meets the challenges of protecting subsea equipment operating at temperatures of up to 185°C (365°F) and acts as the primary corrosion barrier for equipment and piping.

With an excellent and increasing track record, Intertherm 3070 has an excellent track record with subsea equipment suppliers who require high temperature resistant coating solutions for oil and gas projects.

Significant time and cost savings can be made when using Intertherm 3070 for subsea equipment corrosion protection.

**Product:** Intertherm® 3070, 2 coats at 175µm each
**Location:** Azerbaijan
**Type of asset:** Subsea in-line valve and equipment, uninsulated
**Surface preparation:** Abrasive blast cleaning to Sa 2.5 or SSPC SP 10/NACE 2
**Project owner:** BP
**Applicator/Fabricator:** MQS
**ISO12944 environment:** IM2
**Project size:** 400m², 800 liters of Intertherm 3070