Contra Flame®
Splash Zone Riser Protection System
Better products for challenging situations

For further information about the ContraFlame® range of products, please visit www.advancedinsulation.com
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Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Passive Fire Protection

ContraFlame® Splash Zone Riser Protection insulation materials are based on a unique phenolic syntactic foam, ContraFlame® C50

Advanced Insulation is a global supplier of Insulation (Topside and Subsea), Passive Fire Protection (PFP), Cryogenic Spill Protection (CSP), Blast and Fire Walls, Buoyancy Products and Cable Protection Systems.

The company designs, manufactures and installs ContraFlame® Passive Fire Protection (PFP) to provide significant weight savings, protect assets, maintain structural integrity and safeguard personnel working in challenging environments.

Certified by Lloyd’s Register, DNV and ABS, ContraFlame® is used across a broad range of industries; including offshore and onshore oil and gas applications, defence, marine and LNG.

ContraFlame® is used to protect a large range of equipment, including heat exchangers, hot and cold vessels, saddles and skirts, welding nodes, risers and can be pre-formed into enclosures and half shells for use on piping, valves and flanges.

It has a higher temperature range than other materials on the market providing protection for cryogenic spill applications and elevated operating temperatures compared with intumescent type materials.
ContraFlame®

Benefits of ContraFlame®

ContraFlame® is extensively tested for use in saline marine environments

What makes ContraFlame® different?

+ Robust durable construction to withstand service and environmental conditions
+ Integrated insulation and Passive Fire Protection (PFP) up to J120-200 protection
+ Capable of withstanding up to 4.2 bar blast overpressure
+ Field joint application can be done at the yard or offshore.
+ Can be pre-moulded into enclosure or half-shell form
+ Excellent weather resistance using joint-less, seamless D2004 laminate system for marine, saline environments
+ Negligible smoke and fumes in fire conditions
+ No chemical change during fire scenario

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<th>Temperature Range</th>
<th>Fire Performance</th>
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<tr>
<td>C50 suitable for operating temperature +185°C</td>
<td>Protects assets for up to 2-hours fire duration</td>
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<th>Up to 4.2 Barg</th>
<th>Corrosion Resistant</th>
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<tr>
<td>Maximum peak overpressure</td>
<td>Joint-less, seamless finish for splash and tidal zone</td>
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Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Designed to Protect, Built to Last

ContraFlame® Splash Zone Riser Protection is designed for life-in-field use within the harshest environments

ContraFlame® Splash Zone Riser passive fire protection and insulation is the product of years of investment and development in material chemistry, manufacturing processes, modelling capability, in-house and external testing to create a bespoke solution for harsh and challenging environments.

The product range for Riser applications includes a unique ContraFlame® C50 syntactic phenolic foam and D2004 laminate, or ContraFlame® C20 silicone for flexible risers.

ContraFlame® Splash Zone Riser Protection is designed to provide high integrity anti-corrosion protection and long term resistance against debris impact and wave slam inside and outside the splash tidal zone.

As a market-leader for robust passive fire protection, ContraFlame® is tested to outperform other insulation materials when it comes to weather protection and fire performance.

ContraFlame® has been utilised by oil and gas operators including:

- Chevron
- ConocoPhillips
- Total
- INPEX
- NCOC
- Bumiarmada
- BP
- ExxonMobil
- MAERSK Oil
ContraFlame® Certifications

ContraFlame® systems are subjected to a number of fire, weather and adhesion tests for use on offshore structures:

- **Fireproofing**
  - Jet fire protection for up to 120 minutes

- **Weatherproofing**
  - Tested in extreme weather conditions

ContraFlame® Splash Zone Riser Protection systems have undergone a range of fire tests for tubular and planar scenarios:

- Critical temperature rise within TOTAL GS SAF 337 specification for less than 200°C after 120 minutes of jet fire.

In addition, the ContraFlame® top-skin D2004 has been tested to ensure UV resistance in harsh weather environments in accordance with ISO 4892-2:2013:

- The test duration was 2,555 hours which equals to 5GJ/m² total radiant energy.
- ISO 4892-2 specifies the methods for exposing specimens to xenon-arc light in the presence of moisture to reproduce the weathering effects (temperature, humidity and/or wetting) that occur when materials are exposed outdoors to sunlight. This specification is designed for polymer materials although xenon arc exposures for paints and varnishes are described in ISO 11341 which uses the same 102/18 test cycle.
- Long track record in marine environments.

Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Fire Performance

ContraFlame® Splash Zone Riser Protection provides optimum performance either as a wet-applied putty or pre-formed enclosure.

ContraFlame® Splash Zone Riser protection comes in a variety of options depending on the fire duration and critical core temperature.

For risers, Advanced Insulation offer ContraFlame® JF120-200 in accordance with the TOTAL GS SAF 337 specification with a temperature rise of less than 70°C on riser pipework. ContraFlame® JF120-200 has been tested on both planar and tubular fire scenarios.

ContraFlame® can be applied for J60 or J120 with a less-critical temperature requirement by adjusting the phenolic foam thickness.

Enclosure systems are also available taking the same core technology applied in pre-formed sections which bolt together on site providing J60 or J120 performance. Enclosures are designed for use on riser hanger clamps and ESDVs within the splash zone.

ContraFlame® is also available in moulded half shells which provide a quick-fit application.

ContraFlame® C20 provides flexible fire protection using a unique silicone foam for flexible risers.

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<tr>
<th>Moulded Products</th>
<th>TOTAL Specification</th>
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<tr>
<td>For Riser hanger clamps and ESDVs</td>
<td>GS SAF 337 specification compliant</td>
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<tr>
<th>Low Critical Temperature</th>
<th>Up to 120 Minutes</th>
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<tr>
<td>Temperature rise &lt;70°C after 120 minute jet fire</td>
<td>Hydrocarbon jet fire protection</td>
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Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Additional Testing

ContraFlame® Riser Protection was designed with the markets ever-evolving demands in mind and tested accordingly

ContraFlame® insulation materials provide maximum protection that can withstand the effects of a blast and continue to provide the required level of fire protection.

+ C50 tested for a maximum peak overpressure of 4.2 bar.

Each ContraFlame® installation is different in that the anti-corrosion coating used changes from yard to yard. ContraFlame® can be applied to a wide range of anti-corrosion coatings.

In addition, ContraFlame® Riser Protection materials have been subjected to bend tests to ensure flexibility in situ and during lifting and installation.

Advanced Insulation will provide pull-off test data where necessary and offer full technical support to ensure maximum compatibility. Pull-off data verifies the adhesive bond of the foam and laminate system to the substrate.

Accelerated age tests of ContraFlame® ensure prolonged life in marine, saline environments.

**Blast Protection**
Up to 4.2 bar peak overpressure

**Suitable in Cold Climates**
Track record in the Arctic Circle with lows of -50°C

**Weatherproof**
Tested in extreme weather conditions

ISO 20340 Accelerated age test samples after cyclic on the D2004 laminate system
Find out more about ContraFlame® at: www.advancedinsulation.com
Applications for ContraFlame® Riser Protection

ContraFlame® Riser Protection is designed to provide life-in-field protection for a number of applications:

- Rigid risers
- Riser hanger clamps
- Flanges
- ESDVs
- Pipework outside of the splash zone
- Pressure vessels and vital process equipment

Topside | FPSO | Refineries | LNG Process

ContraFlame® | Riser Protection System
ContraFlame®
What can ContraFlame® Protect?

ContraFlame® can be applied to a variety of applications to provide combined PFP and thermal insulation

- Risers
- Separators
- Decks
- Bulkheads
- Valves and actuators
- Welding nodes
- Man-ways
- Air receivers
- Process vessels
- ESDV, MOV and SDV
- Junction boxes
- Heat exchangers
- KO drums
- Jacket legs

Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Site Application & Training

ContraFlame® PFP comes with a single point responsibility from Advanced Insulation; ensuring quality is measured at every stage during manufacture, shipping and on-site installation.

Advanced Insulation offer a single point responsibility on all ContraFlame® PFP and insulation systems.

This means that application teams globally are trained and certified to apply and inspect ContraFlame® according to the application procedures.

Training packages include a demonstration rig, flat plate or piping along with ContraFlame® materials, tools and a supervisor. This provides hands-on experience with the materials at the start of any major project.

During the installation phase, trained applicators are supervised by Advanced Insulation, to ensure the correct film thickness is applied and applicators understand each stage of the process. Supervisors will co-ordinate personnel across the installation areas to ensure efficient application phases.

Training Certificates

Issued to each approved site applicator

Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

Riser Application Types Available

**Advanced Insulation is a market-leading provider of phenolic and silicone passive fire protection and insulation**

Advanced Insulation designs, manufactures and installs its products for a variety of markets including oil and gas facilities, petrochemical plants and refineries.

ContraFlame® provides a robust, impact resistant solution with high integrity fire performance. A number of solutions are available depending on the application requirements:

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<th>Description</th>
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<td>High-performance PFP for J120-200 specification</td>
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<td><strong>ContraFlame® JF60-200</strong></td>
<td>High-performance PFP for J60-200 specification</td>
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<td><strong>ContraFlame® C20</strong></td>
<td>Flexible riser protection up to J120 protection</td>
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<td><strong>ContraFlex® PFP Jackets</strong></td>
<td>Removable PFP for simple maintenance</td>
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<td><strong>ContraFlame® Half-Shells</strong></td>
<td>Modular half-shell premoulded products</td>
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<td><strong>ContraFlame® Enclosures</strong></td>
<td>Enclosure system for riser hanger flange and ESDV</td>
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ContraFlame®

ContraFlame®

JF120-200

ContraFlame® JF120-200 was designed to meet the TOTAL specification GS SAF 337 for Riser applications

ContraFlame® JF120-200 has been developed in order to provide risers with elevated operating temperature protection against jet fires of up to 120 minutes duration with a critical temperature of 200°C.

The ContraFlame® JF120-200 system comprises of 90mm of C50 phenolic foam and a 8-layer D2004 GRP laminate to provide protection against wave slam and debris impact.

The system is certified by Lloyd’s Register, DNV and ABS.

Features and benefits:
+ Up to J120 protection on planar and tubular scenarios
+ High integrity anti-corrosion protection with joint-less, seamless D2004 GRP laminate system
+ Durable construction to withstand service and environmental conditions
+ Designed for use below Lowest Astronomical Tide (LAT) and within the splash zone environment
+ Meets TOTAL GS SAF 337 specification

ContraFlame® | Riser Protection System
Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

ContraFlame® JF60-200

ContraFlame® JF60-200 was designed in order to provide 60-minutes jet fire protection with a critical temperature of 200°C

ContraFlame® JF60-200 has been developed in order to provide riser protection against jet fires up to 60 minutes duration with a critical temperature of 200°C.

The ContraFlame® JF120 system by Advanced Insulation at 30mm C50 foam thickness and 4-layer D2004 GRP laminate was adapted and modelled using FEA software to provide protection with a lower critical temperature in accordance with the TOTAL GS SAF 337 Specification.

ContraFlame® JF120 was unable to provide a 200°C critical temperature at 30mm foam thickness, so the system was enhanced and third party assessed to give a foam thickness of 34mm.

Features and benefits:
+ Up to J120 protection on planar and tubular scenarios
+ High integrity anti-corrosion protection with joint-less, seamless D2004 GRP laminate system
+ Durable construction to withstand service and environmental conditions
+ Designed for use below Lowest Astronomical Tide (LAT) and within the splash zone environment
+ Meets BP and BG specifications

J120 / J60-200
High performance jet fire protection

Corrosion Resistant
Composite materials provide seamless finish
ContraFlame®

ContraFlame®
Half-Shells

Half-Shells provide an alternative fitting method on site that is useful for long pipe runs or short application schedules

ContraFlame® JF120 half-shells or tri-shells provide an alternative solution to a hand applied putty form of ContraFlame® C50 materials.

ContraFlame® half shells come in two forms:

+ Laminated half-shells with simple mastic and banding installation.
+ Bonded C50 half-shells for applications over neoprene insulation which are laminated on site post application.

ContraFlame® Half-Shells and Tri-Shells are available for pipe sizes 1” up to 36” lines, with or without trace heating.

Features and benefits:

+ Up to J120 protection on tubular scenarios
+ Pre-cast insulation for piping, bends, tees and reducers
+ Designed to accommodate trace heating
+ Durable construction to withstand service and environmental conditions
+ Joints are staggered and sealed with a fire rated silicone sealant
+ 50mm thick system

Up to J120 Protection

High performance jet fire protection
ContraFlame® Enclosures are built up of C50 moulded sections with D2004 laminate outer skin. They provide an alternative removable solution on process equipment and riser hang-off flanges.

ContraFlame® Enclosures come in two thickness options, depending on its fire rating:

- ContraFlame® JF60 Enclosures are 50mm thick providing J60 protection
- ContraFlame® JF120-200 Enclosures are 56mm thick, providing J120 protection

Both systems are designed to maintain critical temperatures <200°C.

Enclosure systems are bespoke to the equipment they protect and can be combined with ContraFlame JF120-200 or JF60-200 system for a fully comprehensive PFP System on the riser and associated hanger flange and ESDV.

Features and benefits:

- Up to J120 protection on tubular assemblies
- Pre-cast insulation for valves, flanges and riser hang-off flanges
- Durable construction to withstand service and environmental conditions
- Self-supporting and does not require framing arrangement
- Suitable for the splash zone

Up to J120 Protection
Two Enclosure Types are available, J60 or J120
Find out more about ContraFlame® at: www.advancedinsulation.com
ContraFlame®

ContraFlame® C20 Flexible Riser Protection

ContraFlame® C20 is a pump in place silicone foam, using mould tooling for flexible riser structures

ContraFlame® C20 Riser Protection was developed and tested specifically for riser protection and offers up to 120 minutes of jet fire protection (J120).

The system is based on a unique syntactic silicone which provides passive fire protection and combined thermal insulation properties.

ContraFlame® C20 can be used in the splash zone where salt spray and wave slam pose a potential threat and where pipework is susceptible to flexure.

Features and benefits:
+ Up to J120 protection on tubular scenarios
+ Pump-in-place moulded product
+ Durable construction to withstand service and environmental conditions
+ Suitable for the splash and tidal zone
+ Developed using similar technology to ContraTherm® C25 subsea thermal insulation.

Up to J120 Protection
High performance jet fire protection
ContraFlame® & ContraFlex®
Protection Packages with ContraFlex®

Outside the splash and tidal zones, ContraFlame® can be coupled with Advanced Insulation’s ContraFlex® range of flexible jackets.

ContraFlex® PFP jackets are used to provide removable PFP where inspection and maintenance is required.

The ContraFlex® jacket system has been tested for up to 180 minutes fire protection on tubular, planar and structural applications.

For more information on ContraFlex® PFP, please request a brochure.

Features and benefits:
- Up to J180 and H180 protection on tubular and planar scenarios
- Removable system for inspection and maintenance
- Suitable for marine environments outside the splash and tidal zones
- Can be provided in conjunction with ContraFlame® to protect Risers, ESDVs, further piping packages and vessels.
Find out more about Contraflame® at: www.advancedinsulation.com
Global Presence

Advanced Insulation offers a fully comprehensive service that includes survey, design, manufacture and installation. Requests for quotation and marketing enquiries should be submitted to: info@advancedinsulation.com.

With branches across the world, the company can offer organisations and businesses a comprehensive array of products including passive fire protection, topside and subsea insulation, cryogenic spill protection, blast and fire walls, buoyancy and cable protection systems.

A full technical support service is available for all products, at any location.

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