Charcast® 7

Engineered by GARDYON

PRODUCT INFORMATION & FIRE TEST CERTIFICATION SUMMARY

Charcast®7 Engineered Jet Fire Panel System

A Fire Protection System Designed, Tested, & Certified:

Jet Fire | Rapid Rise Hydrocarbon | Cellulosic | Weatherability

SM0016.03.06 Charcast®7 Brochure

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Product Overview

Charcast® 7 panels are engineered, designed and manufactured by GARDYON . In a global agreement with International Paint LLC, Gardyon is the exclusive manufacturer of **Charcast® 7**.

Charcast® 7 is specifically designed for maximum thermal performance, light-weight and rapid 'dry-fit' installation. This engineered panelled (or pre-cast epoxy intumescent) material gives an alternative solution in areas where conventional spray or trowel fire protection application methods are not feasible or desirable.

This unique fire protection system can be installed quickly and simply over what is already there - bulkheads, underdecks, and structural members.

Charcast® 7 has undergone an extensive fire test programme including jet fire testing up to 4 hours in accordance, with what is now the industry de facto standard, namely, ISO 22899. Certification from Lloyd's Register is now in place, as well as ABS approval.

Features & Benefits

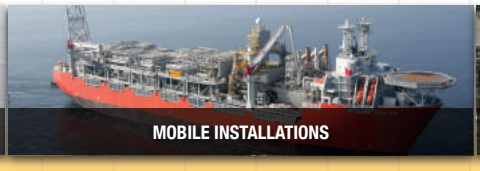
- Versatility – Applicable to onshore and offshore facilities
- State of the art technology – Specifically designed for maximum thermal performance, light-weight and rapid 'dry-fit' installation
- Extensive testing includes:
  - Jet fire ISO 22899
  - UL 1709
  - IMO Resolution A.753(18) (Plastic Pipe Protection – level 1)
    - IMO Resolution MSC.307(88)-HC Time Temperature, BS 476 and ISO 834
  - NFPA 58 (hose stream)
  - Lloyd's Register certification issued
- Research & development – Unique offering of engineering & design for individual applications
- Efficient to install – Panel system provides fire protection in "ready-made" form with faster & less onerous installation, eliminating the need for grit blasting, priming, and liquid-applied materials which require restrictive worksite conditions and expertise
- Can be installed quickly and simply over what is already there - bulkheads, underdecks, and structural members, and can be done in virtually any climate & weather condition, day or night
- Allowance for future inspection & maintenance
- High durability & weatherability – Proven field functionality with decades of use in harsh offshore environments
- Long term reliability & environmentally suitable
- Installation & operational life cycle value added

FULLY TESTED & CERTIFIED BY LLOYD'S REGISTER

SIMPLE, QUICK & EFFICIENT INSTALLATION

Application Areas

FIXED INSTALLATIONS



MOBILE INSTALLATIONS

REFINERIES & PETROCHEMICAL INSTALLATIONS

DIVISIONS

- Walls
- Bulkheads
- Decks
- Deckheads

STRUCTURAL STEEL SECTIONS

- Columns
- Beams
- Girders
- Sections: "I", "H" and Hollows & Tubulars

EQUIPMENT & FITTINGS

- Vessels
- Valves
- Actuators
- Cable trays
- Flanges
- Pipings
- GRE Spools

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Leading The World In Service

Supported by a unique combination of extensive history, experience and technical expertise, **Charcast.7** incorporates International Paint's intumescent technology to provide a reliable & unrivalled service to customers and clients on a worldwide basis.

Charcast.7 is a reliable panel system that combines the extraordinary fire protection capabilities of International Paint's epoxy intumescent with GARDYON's innovative engineering and design strengths to produce a unique panel system that is fast and easy to install.

Design

Charcast.7 was specifically designed for maximum fire protection efficiency. Being light-weight and easy to install, it is suitable in areas where conventional spray or trowel fire protection application methods are not feasible or applicable. The panel system provides strength and weather integrity like no other competing panel system can.

All panels are reinforced 100% solids epoxy intumescent, allowing for a variety of applications and attachment methods. Fasteners are external, requiring no potting. The finished surfaces are smooth and attractive and can be over-coated if specified.

With **Charcast.7**, no surface preparation is required. Installing this lightweight panel system is quick and easy – in virtually any weather conditions. Hand-tools are all you need – no templates, no headaches. Few, if any, measurements are required.

All panels are manufactured under quality assurance procedures in conformance with ISO 9001 standards.

State of the Art Technology

The **Charcast.7** panel system has low density, high durability and weatherability characteristics, featuring an easy installation process. This system is the highest quality cost efficient fire protection of its kind on the market today.

Charcast.7 is tough, durable and virtually maintenance-free. It is ideal for long term fire protection on offshore oil and gas production platforms, at refineries and chemical processing plants. And, what's more, it is halogen free – so in a fire, it does not generate hazardous chlorine-containing gas.

High Durability & Weatherability

Durability & weatherability – a highly effective fire protection system, **Charcast.7** is manufactured using **Chartek.7**, with durability as a key criteria. For example, exceptional compressive strength – passing environmental exposure tests such as NORSOK with no topcoat. Thus, maintenance is reduced to repair of minor damages, and aesthetic topcoat as required.

Environment and Safety

The levels of smoke generated by **Charcast.7** are very low. **Charcast.7** toxicity levels meet one of the few standards that provide stringent acceptance criteria namely the International Maritime Authority (IMO), SOLAS code.

Tested and Certified

- **Charcast.7** is approved and certified by Lloyd's Register
- Certification is in accordance with the latest internationally recognised fire test standard for Jet Fire ISO 22899 as well as Underwriters Laboratory UL1709
- Testing and certification covers divisions (bulkheads and decks) and structural members (I-beams & Hollows)
- Jet Fire Testing includes durations up to 4 hours for divisions
- Tested to IMO Resolution A.753(18) Level 1 (Plastic Pipes GRE), IMO Resolution MSC.307(88)-HC Time Temperature, BS 476 Part 20 Appendix D & ISO 834 (HC time/temperature curve), American Bureau of Shipping (ABS) Rules & Regulations & NFPA 58 (Hose-Stream Criteria)

RISER BALCONY VERTICAL DIVISION

STRUCTURAL NODE CONNECTION

ESDV

INSTALLATION OF ACCOMMODATION MODULES & BLOCKS

SPECIAL SHAPES

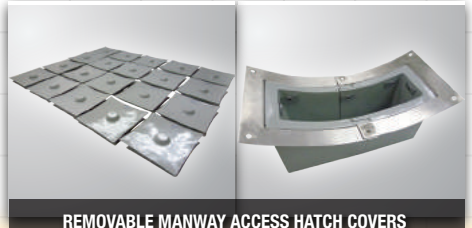
PROTECTION OF PLASTIC PIPE

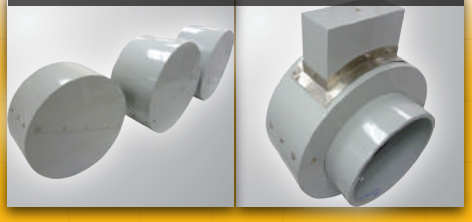
FLANGES

TUBULAR & CONNECTOR INSPECTION JOINTS

VESSEL SADDLE SUPPORT

REMOVABLE INSPECTION POINT COVERS


REMOVABLE MANWAY ACCESS HATCH COVERS



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Fire Test Certification Summary

CERTIFICATE NO.	CLASSIFICATION	TEST STANDARD
SAS F170213	JF/Structural Divisions/400/190	ISO 22899
SAS F110425	JF/ Structural Divisions/295/180	ISO 22899
SAS F110388	JF/ Structural Divisions/400/60	ISO 22899 & NFPA 58 (Hose-Stream Criteria) Appendix (H)
SAS F170211	JF/ Structural Divisions/400/135 - (Framework)	ISO 22899
SAS F170212	JF/Structural Steelwork/400/70	ISO 22899
SAS F110444	JF/ Structural Steelwork/400/135	ISO 22899
SAS F110357	Fire Test – Pass / Pressure Test – Pass (Level 1)	IMO Res. A.753(18)
SAS F110168	538°C; 90 minutes	UL 1709
SAS F110169	538°C; 140 minutes	UL 1709
12-HS817099-PDA	JF/Structural Division Panel System/400/130	ISO 22899
SAS F130188	H-120 Bulkhead	IMO Res.MSC.307(88)-HC Time Temperature
SAS F130188	HC/Bulkhead/400/120	IMO Res.MSC.307 (88)-BS 476 Part 20 Appendix D & ISO 834 (HC time/ temperature curve)
SAS F130240	JF/Structural Tubular/200/65	ISO 22899
SAS F130240	JF/Structural Tubular/400/110	ISO 22899
SAS F130240	JF/Structural Tubular/550/140	ISO 22899
14-LD1217211A-PDA	JF/ Tubular Member/200/60	ISO 22899
14-LD1217211A-PDA	JF/ Tubular Member/400/105	ISO 22899
14-LD1217211A-PDA	JF/ Tubular Member/550/135	ISO 22899
14-LD1217211B-PDA	Fire Endurance in a Hydrocarbon Fire – Level 1 (60 minutes in dry conditions – plastic pipes (GRE))	IMO Res. A.753(18), and American Bureau of Shipping (ABS) Rules & Regulations
SAS F130220	JF/Structural Sections/450/120	ISO 22899
SAS F150323	HC/Structural Tubular/538/160	UL 1709
SAS F150323	HC/Structural Tubular/538/245	UL 1709
SAS F150323	HC/Structural Tubular/265/250	UL 1709
44831/A0 BV	Fire Insulation System for Plastic Pipes Fire Test - Pass / Pressure Test - Pass (Level 1)	IMO Res. A.753(18)

DATE: **01 September 2017** | REVISION: **07**

In a global agreement between International Paint LLC, a Delaware limited liability company and its Affiliates and Gardyon Pte Ltd, a Singapore limited liability company and its Affiliates, Gardyon is the exclusive manufacturer of Charcast®7. Gardyon has engineered and manufactured the engineered fire protection panel system, using Chartek®7, under the trademark of Charcast®7 licensed by International Paint. Charcast® and Chartek® are registered trademarks of the AkzoNobel group of companies.

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GARDYON

A Global Protector of Oil & Gas Assets

GARDYON is a global company committed to protecting your onshore and offshore oil & gas assets. Focused on innovation in the field of engineered fire protection, GARDYON pioneers solutions using in-depth Research & Development, advanced Engineering & Design skills, and highly efficient Manufacturing facilities. Its innovative solutions are only the means to an end, which is a peace of mind that we bring to the table.

At GARDYON, every innovative idea is backed by a comprehensive execution plan from inception to commercialization. We believe that innovation and execution are not mutually exclusive, and our ability to get both of these elements right, makes us leaders in our own right.

Our extensive experience in the development, design, manufacturing, installation and maintenance of fire protection and thermal systems ensures that every innovation idea is materialized to its full potential.

RESEARCH & DEVELOPMENT

Gardyon understands the need to innovate and develop safer and more efficient solutions. One of the most important developments has been to incorporate the ISO jet fire test standard in our comprehensive programme of testing and certification. Lloyd's Register under their Type Approval scheme have certified Gardyon's engineered pre-cast panel system, "Charcast®7", as well as Gardyon's flexible jacket system, "ISO-JF180". These systems represent engineered thermal solutions for both fire and blast protection.

ENGINEERING & DESIGN

At Gardyon, we pride ourselves on our ability to convert innovative ideas into actual life- and asset-saving solutions. Assuring the designs have the necessary National Authority and Classification Society approvals, Gardyon conducts in-house detailed engineering & design, to provide turnkey solutions.

No other company offers such a range of engineering skills – this allows our clients to have full confidence in entrusting their fire protection and insulation requirements from design to installation to a single-source service provider, regardless of geographical location. Every Gardyon engineered solution is approved and certified as appropriate for weather and environmental protection, durability, fire performance, insulation performance, corrosion protection and aesthetics. These qualifications are further enhanced by the necessary National Authority and Classification Society approvals.

MANUFACTURING

Gardyon's highly efficient manufacturing facilities are coupled closely to in-house design expertise, assuring that all products are right the first time, and on time. Our global material supply partners who support our manufacture also bring to the table decades of expertise and an in-depth background in this high-level technology. The seamless flow from research & development, to design & engineering, to in-house manufacturing ensures that every Gardyon engineered solution is precision-crafted bringing the maximum value to the customer.

The high level of finish, which is enabled by our precision manufacturing capabilities, ensures that the system is instantly recognisable as another quality product from Gardyon. It emphasizes Gardyon's commitment to detail, and provides clients with the peace of mind that Gardyon's products will continue to perform consistently at its peak - be it day one, or two decades later.

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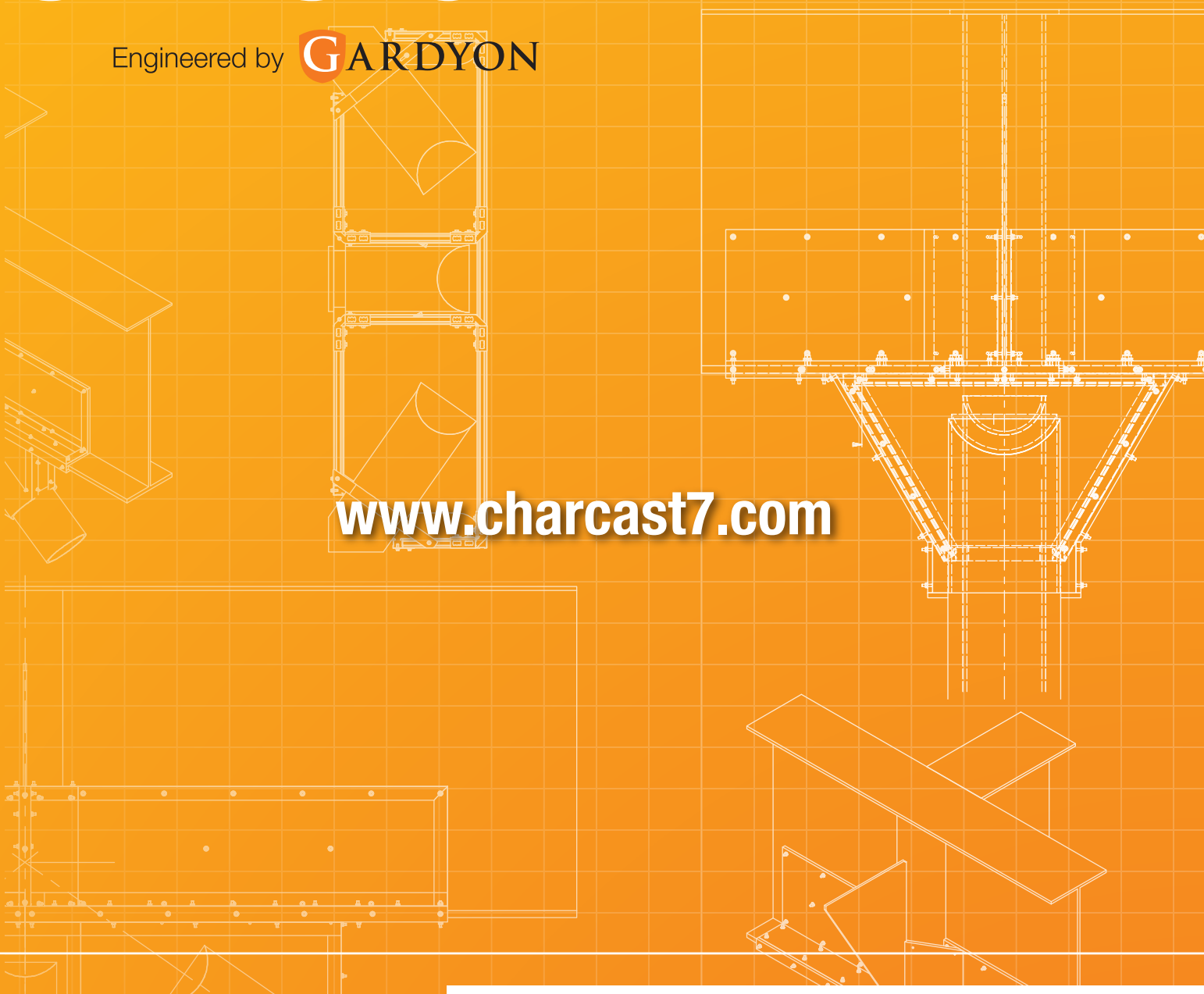

www.charcast7.com

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