



Certificate of Conformity

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Product designation

Orrfire®, ALLGAL® 15+ Mine Pipe, Light-wall, Electro-Galvanized, Mining Industry and Sprinkler Pipe

(Refer to the Schedule/enclosures for further specified details)

Agent/distributor

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Registrant

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Producer

Orrcon Steel
121 Evans Road, SALISBURY, QLD, AUSTRALIA, 4107

Conformance criteria and evaluation

The Orrfire®, ALLGAL® 15+ Mine Pipe, Light-wall, Electro-Galvanized, Mining Industry and Sprinkler Pipe has been evaluated and verified as conforming with the relevant requirements of the following criteria.

1. Australian Standard AS 4118.2.1-1995, 'Fire sprinkler systems - Piping - General'.
2. SSL Appraisal Specification FAS-119, Version 3.0, 'Light ERW Steel Pipe to AS 4118.2.1 & Draft Australian Standard 2462.CDR, Sizes DN25 to DN150, for Fire Protection Systems'.

Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this certificate, are derived from qualifications from evaluation(s) for conformity and/or other related technical documentation. All details with respect to design, assembly and installation instructions and restrictions should be checked against the producer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

Specified limitations/conditions, determined from the evaluation for conformity, include the following.

- i. Fire sprinkler system designers, and authorities having jurisdiction, must confirm that the codes or standards used for the system design adequately address the hydraulic characteristics of this product. Full hydraulic analysis is an approved and recommended method of determining that system performance will meet design requirements.
- ii. Pipes shall not be used below ground.

Issued by

David Whittaker
Executive Officer – ActivFire Scheme



This certification is issued within the scope of CSIRO Verification Services – Rules governing ActivFire Scheme and is valid only for the product(s) as submitted for evaluation and verification of conformity, subject to the following conditions.

- Reference to details, limitations and requirements, where documented as a schedule/enclosure with this certificate.
- The Registrant is responsible for their attestation of conformity and ensuring that on-going production complies with the conformance criteria defined in this certificate.
- This certificate will not be valid if any changes or modifications are made to the product which have not been notified and validated by CSIRO Verification Services.
- This certificate is subject to periodical re-validation upon verification that all requirements, as determined by the conformity assessment body, continue to be satisfactorily met by the Registrant.
- This certificate may only be reproduced in its published form, without modification and inclusive of all schedules/enclosures.
- Any changes, errors or omissions, must be submitted in writing and if necessary or requested, substantiated with relevant evidence.
- Any representations, such as advertising or other marketing related activities or articles shall reflect the correct contents of this certificate and conform with all relevant trade practices and consumer protection legislation and regulations.
- Any terms or conditions of use as applicable to content and documentation as published or accessed through web sites administered by the CSIRO Verification Services.

Schedule to Certificate of Conformity

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Producer's description

Orrfire®, ALLGAL® 15+ Mine Pipe, Light-wall, Electro-Galvanized, Mining Industry and Sprinkler Pipe is a cold-formed and electric resistance welded mild steel pipe which is made from hot-rolled steel strip that has been coated on both sides with electro-deposited zinc prior to forming and welding. The wall thickness of these pipes equals or slightly exceeds those specified in Table 3.1.2 of AS 4118.2.1 - 1995, giving them a suitable pressure rating for use in AS 2118-conforming sprinkler systems. The steel used to manufacture these pipes conforms to the relevant requirements of AS/NZS 1163 Grade C350L0, providing improved resistance to impact at 0°C plus enhanced strength of the rolled grooves. Prior to application of the zinc coating, the hot-rolled steel strip is electrochemically cleaned and de-scaled to a level equivalent to a Class 3 sandblast. The zinc coating 'weight' of the ALLGAL® 15+ pipes is 100 grams per square metre on internal and external surfaces of the pipe. The production standards, materials, and processes, used in the strip galvanizing mill conform to the relevant requirements of AS 4750 - 2003 ('Electro-galvanized (zinc) coatings on ferrous hollow sections'). The loss of zinc coating from the seam area of the pipe's external surface during the ERW process is reinstated by plasma-spraying of molten zinc-aluminium alloy. However, the zinc coating lost from the seam area on the inside of the pipe is *not* reinstated. To alleviate "white rust", the pipes are then painted externally with "Clear-Tec", a specially-formulated clear polymer coating.

All listed sizes are suitable for use with rolled-groove type couplings and fittings of suitable diameter and groove profile, and are also suitable for joining by shouldered-end coupling, or by butt-welding.

Technical specification

The following details are a representative extract of the technical specification for the Orrfire®, ALLGAL® 15+ Mine Pipe, Light-wall, Electro-Galvanized, Mining Industry and Sprinkler Pipe and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

Pipe dimensions

Nominal size DN	Nominal outside diameter	Nominal inside diameter	Nominal wall thickness	Mass per metre
100 mm	114.3 mm	109.3 mm	2.5 mm	6.93 kg
100 mm	114.3 mm	108.3 mm	3.0 mm	8.27 kg
150 mm	165.1 mm	159.1 mm	3.0 mm	12.04 kg
150 mm	165.1 mm	158.1 mm	3.5 mm	14.00 kg

Note:

The above mass values have been derived by calculation assuming that the pipe dimensions are exactly as above and that the steel density is 7850 kg / m³.

Steel properties

AS 1163 Steel Grade	C350L0
Yield strength (MPa) Min.	250
Ultimate tensile strength (MPa) Min.	430
Min. Elongation (%), where gauge length = 5.65*(S ₀) ^{0.5}	20

General

Orrfire®, ALLGAL® 15+ Mine Pipe, Light-wall, Electro-Galvanized, Mining Industry and Sprinkler Pipe is manufactured by using an electric resistance welding method in accordance with the requirements of SSL Appraisal Specification FAS-119: Version 3.0, Light ERW Steel Pipe, to AS 4118 Part 2.1, & Draft Australian Standard 2462.CDR, for Fire Protection Systems'.

Leak-tightness

The leak-tightness and integrity of the weld is ensured by 100% testing with eddy-current type in-line automatic flaw-detection equipment which automatically controls automatic flawed-pipe ejection machinery located at the outlet end of the pipe mill.

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Galvanising

Electro-galvanized coating is applied in accordance with AS 4750, and has a minimum average mass of 100 grams/m² for ALLGAL® 15+ pipes. Zinc coating burnt away from the outside of the pipe during seam welding is reinstated in-line by plasma-spraying of molten zinc-aluminium alloy. To alleviate "white rust", the pipes are then in-line painted externally with "Clear-Tec", which is a specially-formulated clear polymer coating.