

ZINCALUME® steel and zinc coated steel in high temperature applications and food contact

INTRODUCTION

BlueScope Steel manufactures ZINCALUME® aluminium/zinc/magnesium alloy coated steel and zinc-coated steel products with a variety of coatings and finishes to meet the needs of our customers. For the purpose of understanding the effects of elevated temperature application, these products can be classified into two groups being ZINCALUME® steel and zinc coated steel.

This Technical Bulletin provides information relating to the use of ZINCALUME® steel and zinc coated steel in high temperature and food contact applications.

ZINCALUME® STEEL

ZINCALUME® steel must not be exposed to temperatures in excess of 200°C. ZINCALUME® steel is supplied with a clear acrylic coating with a thickness of 1-2µm. This acrylic coating is prone to degradation above 200°C and can generate fumes above 250°C. These fumes are associated with a heavy odour and discoloration of the metal surface.

ZINC COATED STEEL

Zinc coated steel must not be exposed to temperatures in excess of 250°C. At temperatures between 250°C and 300°C, Fe-Zn alloy growth occurs which appears as spots / blankets on the surface which obscures the spangle pattern. Between 300°C and 350°C, there is fracturing and detachment of the zinc coating and embrittlement of the base steel.

FOOD CONTACT APPLICATION

ZINCALUME® steel should not be used in any applications in contact with food, although it is suitable as a catchment for rain water harvesting. The surface treatments used in ZINCALUME® steel and the zinc in zinc coated steel can become soluble when in contact with food acids. As such, containers manufactured from ZINCALUME® steel and zinc coated steel must not be used to store food or beverages.

The use of ZINCALUME® steel in toasters and heaters is not recommended due to the temperature application issues outlined above.

If you have any questions regarding this Bulletin, please contact BlueScope Steel Direct on 1800 800 789.

To ensure you have the most current Technical Bulletin, please go to bluescopesteel.com.au.

The information and advice contained in this Technical Bulletin ('Bulletin') is of a general nature only and has not been prepared with your specific needs in mind. You should always obtain specialist advice to ensure that the materials, approach and techniques referred to in this Bulletin meet your specific requirements.

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