

## Castrol Rustilo AS 20

Chromium-free Passivation Coating

### Description

Castrol Rustilo™ AS 20 is an environmentally responsible passivation product for use in protecting galvanised steel tubes and pipes against white rust. It is water based, and forms a protective covalently bonded film on the metal surface.

### Application

Rustilo AS 20 is used as a replacement for hexavalent chromates, oil based rust preventives and also polymer films.

It is designed so that it can be painted over, therefore is useful for tube manufacturers who then go onto a powder coating process.

The final film left on the metallic coating surface is approximately 300 nm thick and is colourless. It is suitable to be welded and is environmentally responsible being compliant with the latest legislations that restrict the use of chromium (VI) coatings, such as the EU-Directive 2000/53/EC ("End of Life Vehicles Directive", ELV).

### Advantages

- Chromate free – non-carcinogenic alternative to chromium (VI) currently in use
- Easily applied using the same equipment as required for chromates
- Corrosion protection equivalent to chromates in most applications
- Can be painted over
- Does not cause spearing of the tubes in bundles
- Can be ink jetted over
- Tubes coated with Rustilo AS 20 can be welded

### Typical Characteristics

	Test Method	Unit	Value
Appearance	Visual	-	Pale amber, clear liquid
Density @ 15 °C	ASTM D 1298	kg/m <sup>3</sup>	990
pH	ASTM D 1293	-	5
Viscosity @ 40°C	ASTM D 445	cSt	1
Drying time @ 40 °C, wiped	-	minutes	< 2
Corrosion protection	Wet Stack humidity cabinet (Internal)	days	5
	Salt Spray, ASTM B 117	hours	8

## User Advice

- There are a number of ways that Rustilo AS 20 can be applied, however there are four key steps that need to be followed:
  - 1) Galvanised tubes must be cleaned and free of any dirt or grime
  - 2) After cleaning, ensure that the tube is as dry as possible
  - 3) Apply Rustilo AS 20 either using a flood spray system or using a metered spraying system
  - 4) Either wipe off the excess Rustilo AS 20 with a suitable sponge or use air knives to both remove excess and ensure that the Rustilo AS 20 is dry before stacking the tubes.

With ERW tube, step 4) is usually achieved using a sponge wipe system followed by either a drying tunnel or air knives to achieve dryness.

With Hot Dipped Galvanised (HDG) tubes that have been cut to length, it is not possible to use sponge wipes, so air knife systems must perform the job of both removing excess Rustilo AS 20 and to ensure the surface is dry.

- Since the product is essentially colourless it is not easy to detect if the Rustilo AS 20 has been applied. To overcome this, a system has been designed using surface tension pens that detect the presence of the film left behind by Rustilo AS 20.
- It is critical that Rustilo AS 20 treated tubes be dried before stacking. Otherwise white rust can occur on the tubes inside the pack. To ensure that the tubes are dry, cigarette paper is held against the treated surface.  
If the paper darkens, then water is present and the tubes need to be dried before stacking.  
If the paper remains white with no markings then the tubes are ready to be bundled.
- Prior to using Rustilo AS 20, check with your Castrol representative to ensure compatibility with any metallic fittings or elastomers.

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