

Gardoclean® S 5411

Borate- and silicate-free multi-metal cleaner



Advantages:

- + Free of borates and silicates
- + Excellent cleaning performance
- + Liquid product – easy application
- + Robust process
- + Short minimum cleaning time
- + No white spotting on galvanized steel
- + Fully compatible with Oxsilan® or zinc-phosphate
- + REACH compliant

Applications:

- + Liquid formulation for multi-metal pretreatment
- + Spray and dip treatment

Gardoclean® S 5411 does neither contain borates nor silicates and is REACH compliant. The technology provides an excellent cleaning performance in both thin-film Oxsilan® and zinc-phosphate processes.

Substances like boric acid and disodium borate are already listed on the REACH SVHC candidate list and a ban is expected on cleaners containing these substances.

When treating aluminium, substances like silicates cannot be used for cleaning operations prior to thin-film coatings because of poor corrosion test results. To meet multi-metal requirements and upcoming legal restrictions Gardoclean® S 5411 is the ideal solution.

Gardoclean® S 5411

Borate- and silicate-free cleaner designed for multi-metal applications

Borate-containing cleaners for multi-metal applications are standard in several markets like i.e. the automotive industry. However, boric acid and sodium borates have been classified as reprotoxic. They are listed on the REACH candidate list of substances of very high concern (SVHC). The European Chemicals Agency (ECHA) indicates May 2020 as scheduled Sunset Date for boric acid and sodium borates. After the Sunset Date, marketing and use of these substances is forbidden without prior approval by ECHA.

Silicates have excellent cleaning properties but also tend to cause coating defects when drying on the metal surface. When running aluminium substrates in a thin-film process like Oxsilan®, silicate- containing cleaners must not be used. Silicates inhibit the etching of the metal surface which – in consequence – leads to poor corrosion test results. The new developed Gardoclean® S 5411 technology is free of borates and silicates and offers excellent cleaning performance, especially on steel substrates.

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures	
Gardoclean® S 5411	
Conventional automotive cleaner	

Field experience with Gardoclean® S 5411 (compared to conventional cleaners)	Usage of Gardoclean® S 5411
Concentration: 20 g/l (unchanged) Savings in process costs: up to 15 % Better cleaning performance: (see photographs) Etching rate on AL: 20- 50 % less (optimized parameters)	Spray: 45 - 65 °C (115 - 150 °F), 2 - 10 min, 10 - 30 g/L Dip: 55 - 65 °C (130 - 150 °F), 5 - 20 min, 15 - 60 g/L pH-value: from 9.5 to 11.0 (depending on the substrate mix)

Challenging metal surface, cleaned with...

Gardoclean® S 5411	Conventional cleaner

Additional advantages

- Temperature reduction and reduced consumption possible due to excellent cleaning performance, especially on steel.
- Cleaning time can be reduced which results in an increase of productivity.
- More process robustness especially in spray application because of stable pH-value. This higher stability and a longer service life make the product considerably more sustainable compared to standard cleaners.
- No fresh tank make-up required when converting from Gardoclean® S 5176 to the new Gardoclean® S 5411.
- More occupational safety: Gardoclean® S 5411 is not reprotoxic and easy to handle.

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