



**AS-87318**

CAS Number 13497-18-2

## Bis(triethoxysilylpropyl)amine - bis-amino silane (BAS)

Leading chromate-free pretreatment silane – two anchoring points for maximum adhesion and corrosion resistance

### Overview

Bis-amino silane carries two triethoxysilyl groups joined by a propyl-NH-propyl spacer, giving it twice the bonding density of mono-functional silanes. On hydrolysis, six silanol groups are available per molecule, leading to highly cross-linked, dense polysiloxane films on metal surfaces. Mixtures of bis-amino silane with bis-sulfur silane (TESPT) are well-established drop-in replacements for zinc phosphate and chromate pretreatments on automotive steel, aluminium alloys, and galvanised steel – driven by EU REACH restrictions on hexavalent chromium.

### Key applications

- Chromate-free metal pretreatment on cold-rolled steel, galvanised steel, and aluminium alloys – comparable corrosion protection to zinc phosphate when mixed with bis-sulfur silane
- Adhesion promoter for electrocoat (e-coat) and powder coat paint systems on automotive bodies
- Aerospace primer systems replacing hexavalent chromium conversion coatings (Alodine)
- Industrial appliance and coil coating pretreatment – eco-friendly, reduced sludge vs. phosphating
- Rubber-to-metal bonding adhesion promoter for automotive seals and vibration isolators
- Adhesion promoter in epoxy-based structural adhesives applied to steel and aluminium

### Selected literature

[1] Al-Saadi S. & Singh Raman R.K. (2022). Silane Coatings for Corrosion Resistance. *Materials* 15, 7809. <https://doi.org/10.3390/ma15217809>

[2] Sundararajan G.P. & van Ooij W.J. (2000). Silane-based pretreatments for automotive steels. *Surface Engineering* 16(5), 315–320. <https://doi.org/10.1179/026708400101517305>

[3] Zhu D. et al. (2004). Enhanced corrosion resistance of AA2024-T3 using bis-silane mixture. *Electrochimica Acta* 49(7), 1113–1125. [Cited in PRA World review] <https://praworld.com/2019/08/21/chromate-free-coatings-systems-for-aerospace-and-defence-applications/>

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