






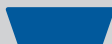
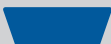
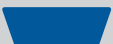










# Analyses of the Oxsilan® technology

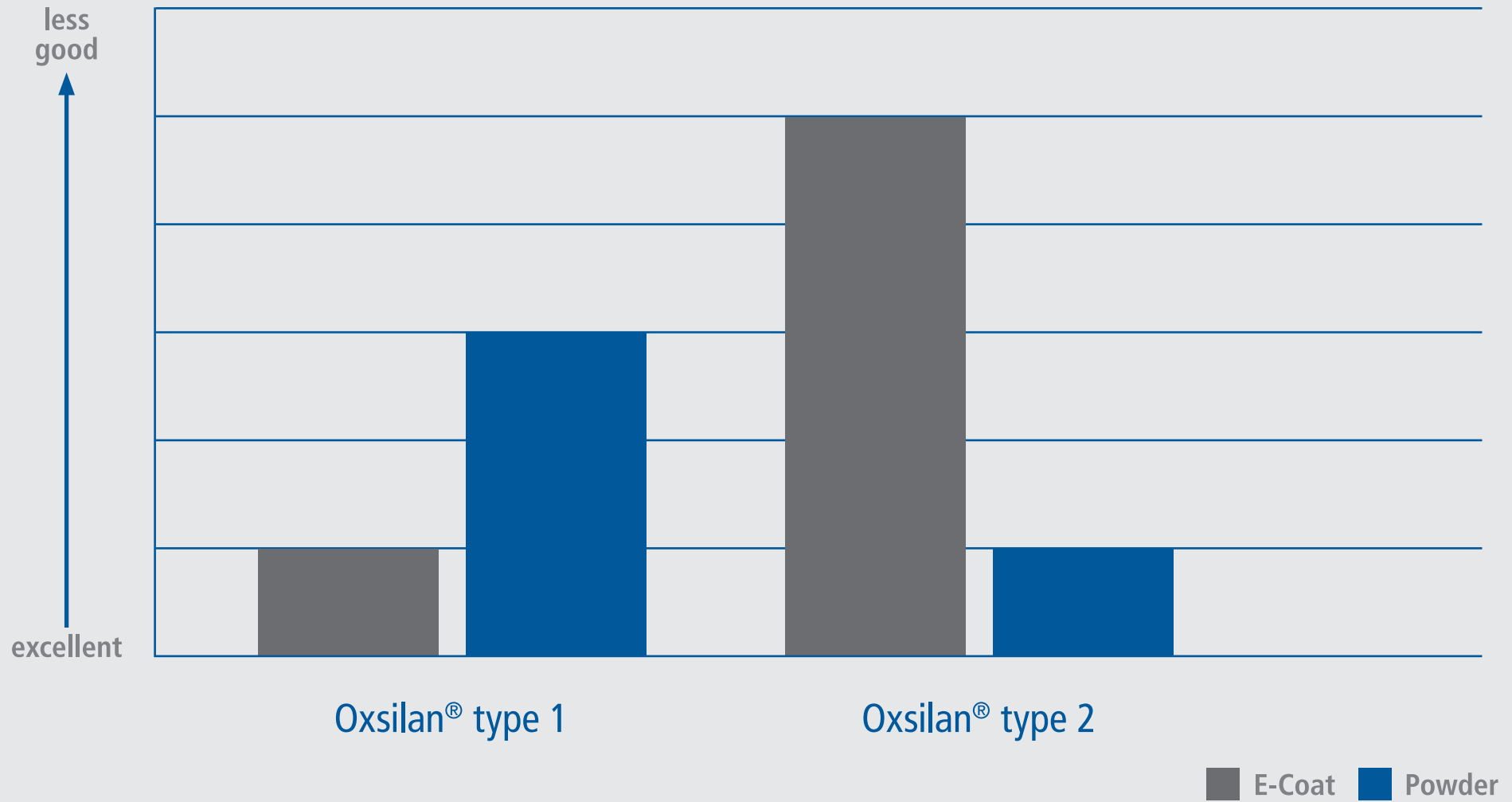
	Zr	Si	Cu	Mn	Al	Fe	Zn	Free fluoride	pH
ICP <sup>1)</sup>									
Spectrophotometer									
Titration									
XRF	 	 							
Fluoride meter <sup>2)</sup>									
pH meter									

<sup>1)</sup> Inductively Coupled Plasma

<sup>2)</sup> Ion-selective electrode

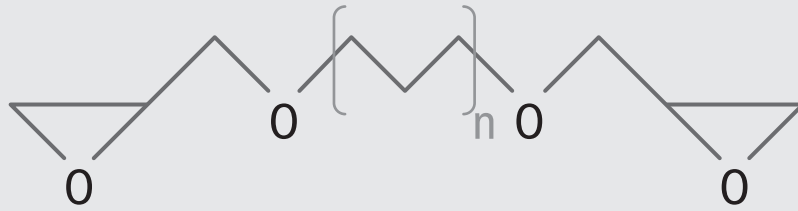
 Bath  Substrate

# Oxsilan® performance on paint systems



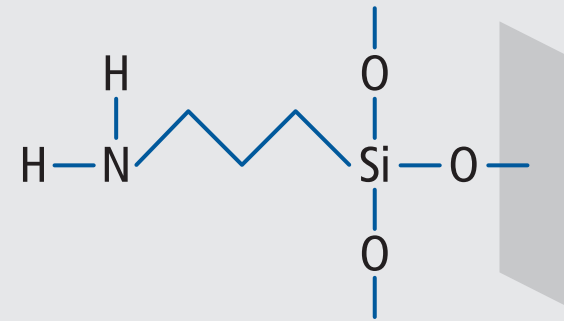
# Chemistry of the Oxsilan® technology

Epoxy resin

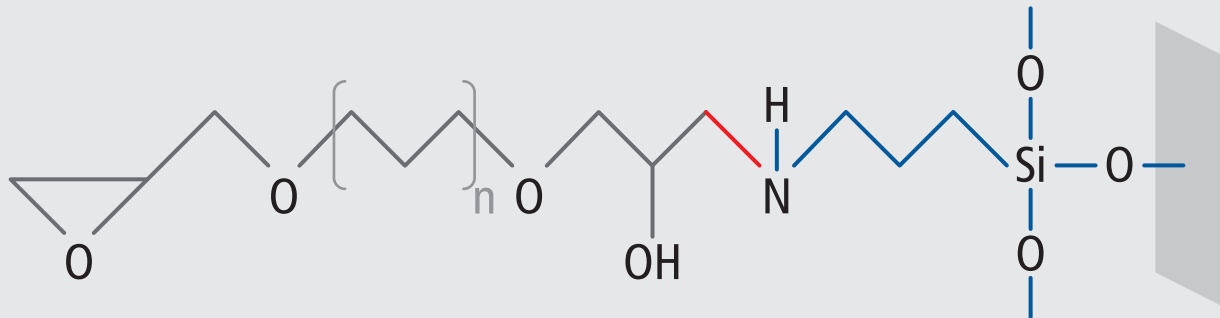


+

Silane with functional group



Amine-modified epoxy resin (polyepoxide)



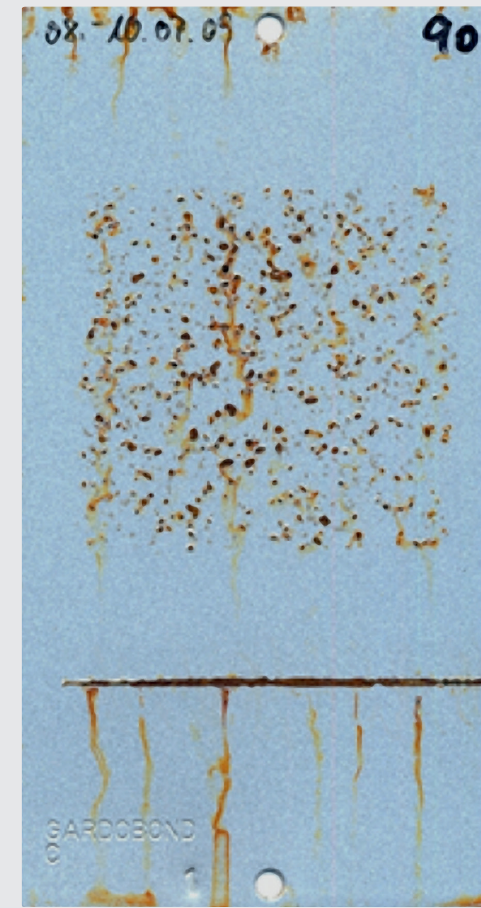
# Chemistry of the Oxsilan® technology



0 mg/l



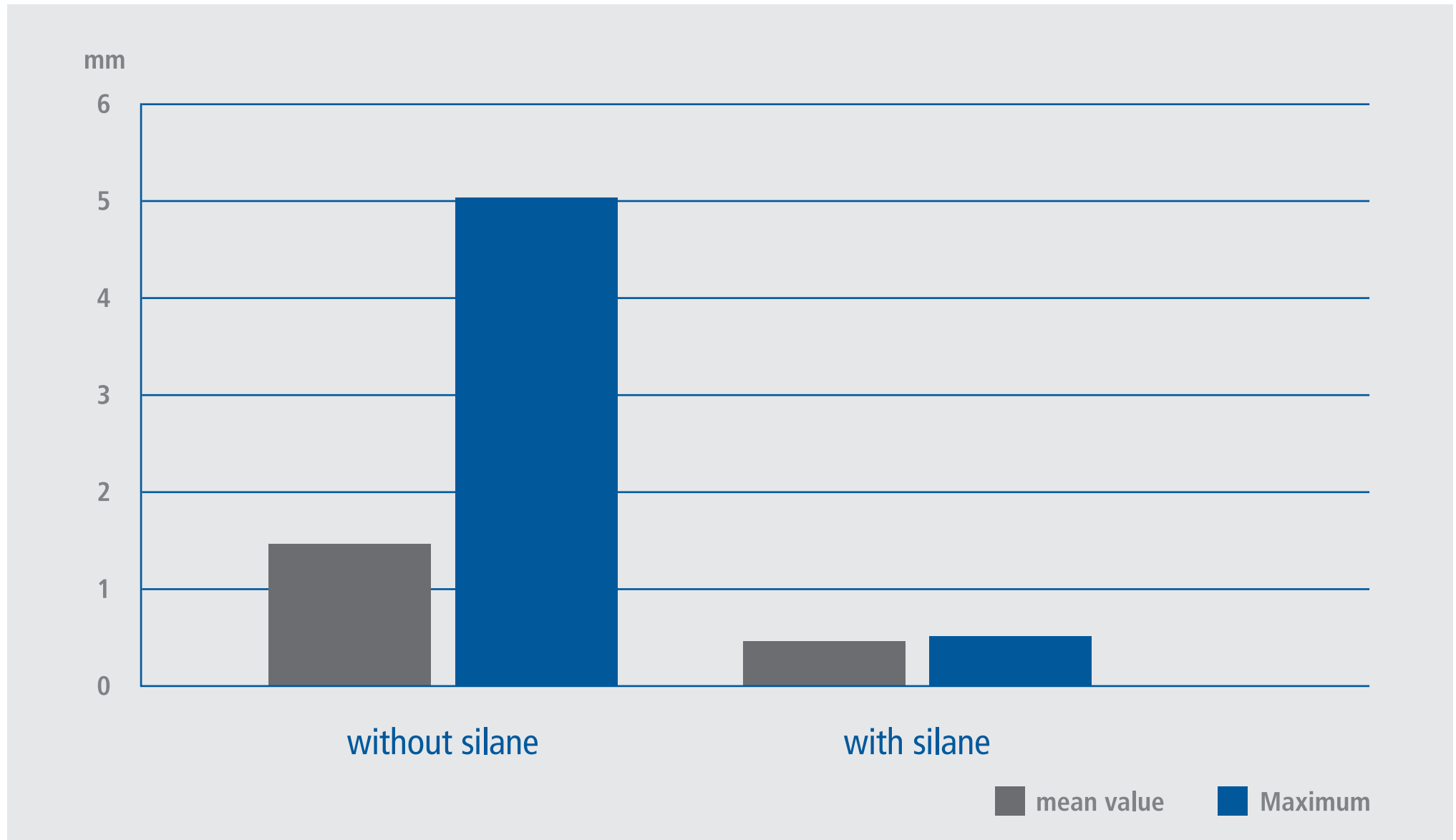
200 mg/l



400 mg/l

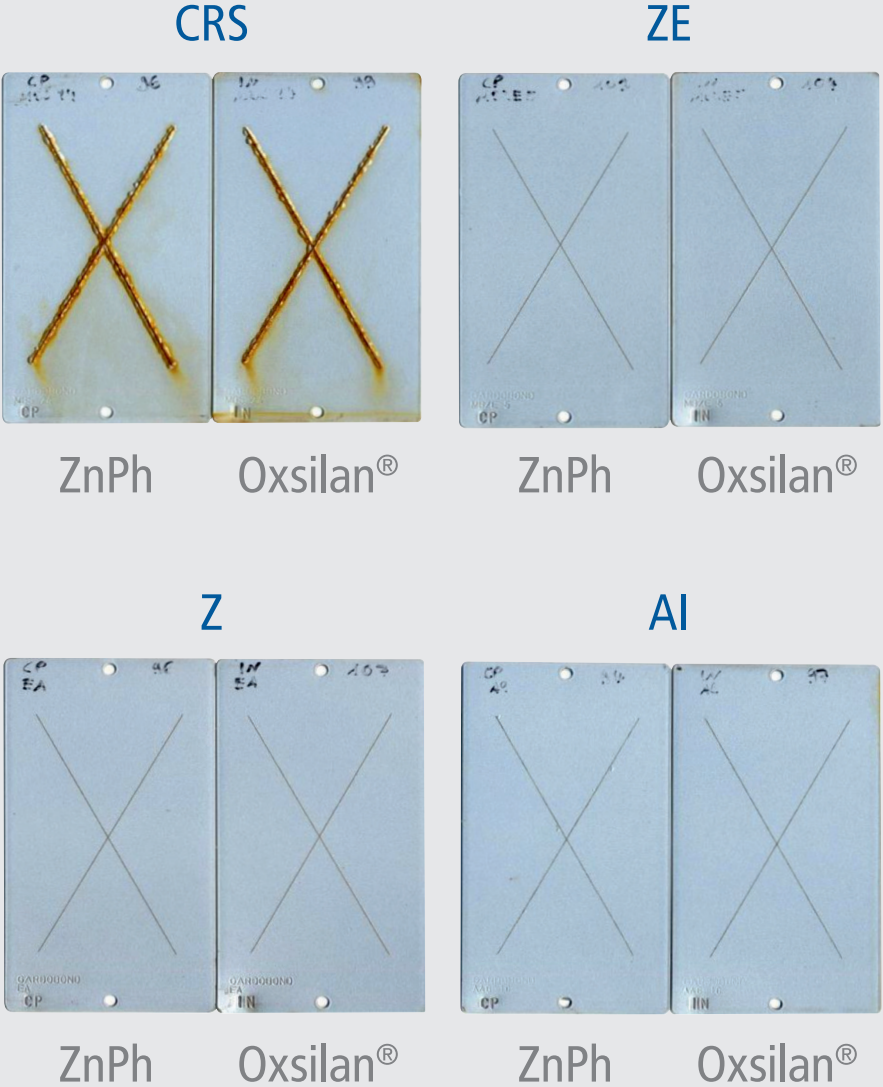
CRS sheets after 10 cycles of VDA weathering and stone chipping tests

# Improved paint adhesion and corrosion protection



Creepage on CRS: Zirconium-based pretreatment + E-Coat (after 15 cycles of GMW 14872)

# Comparative weathering tests



Technology: Oxsilan® 9831  
Paint structure: E-Coat, filler, top coat  
Thickness: ~ 100 µm  
Tests: 24 months weathering + NaCl