



## PREPARED FOR EVERYTHING

The equipment in the Kluthe laboratory is state of the art.



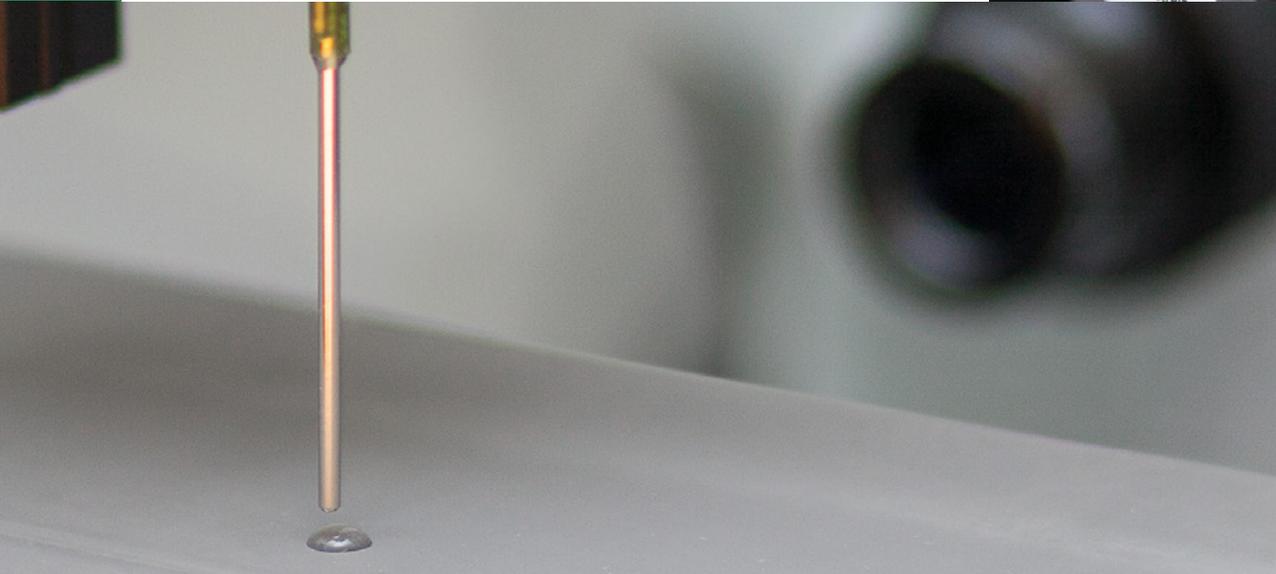
Harmony in  
Chemistry



## FORMULA FOR SUCCESS

Selecting the proper product is imperative to the success of chemical pretreatment. To find the most suitable product, we pretreat original parts in our technical center and coat them with paint systems.

The modern equipment in the laboratory allows us to develop appropriate products. We then verify our solutions through coating, testing and analyzing.



## DEVELOP

The central research and development laboratory supported by the subsidiaries' laboratories develops innovative processes for chemical pretreatment solutions in coordination with the customers and pursuant to market requirements.

## COAT

The viability of a coated surface is always the cumulative result of the substrate, pretreatment and coating. A professional coating is essential.

## TEST

If the substrate, pretreatment, and coating are optimally coordinated, the corrosion protection and paint adhesion offer excellent values.

## ANALYTICS

Modern analytical methods can accurately qualify both the chemicals and the surfaces used.

Below is an excerpt from our equipment list of our research and development department.

EQUIPMENT	REMARKS
<b>Development</b>	
6 bath pretreatment line (NL) 9 bath pretreatment line (HD)	9 bathes for dipping, 1 bath with spraying installation and 1 movable chamber 60 l (spray process) - 200 l (dipping process)
3 chamber spraying machine	transportable
<b>Paint application</b>	
ED coating bath	15 l capacity
<b>Corrosion tests</b>	
SST DIN EN ISO 9227 chamber	1000 l Volume
Climate cycle test (VDA / PVW) / 2 chambers	1000 l Volume
Filiform cabinet	500 l Volume
Condensed climate cycle test cabinet	200 l Volume
<b>Mechanical paint test</b>	
Mandrel bend test DIN EN ISO 6860	conical
<b>Analytics</b>	
SEM (Phenom XL)	SED / BSD detectors, EDX detector – elementary analytics for surfaces
DAS 25 (contact angle measuring device)	Calculation of surface energy for surfaces and liquids
ICP	Metal determination in liquids
FT-IR (ATR)	IS-5 Nicolette
FT-IR	IS-5 Nicolette - Thermo scientific
UV-Vis Spectrophotometer	Merck Spectroquant Pharo 100



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