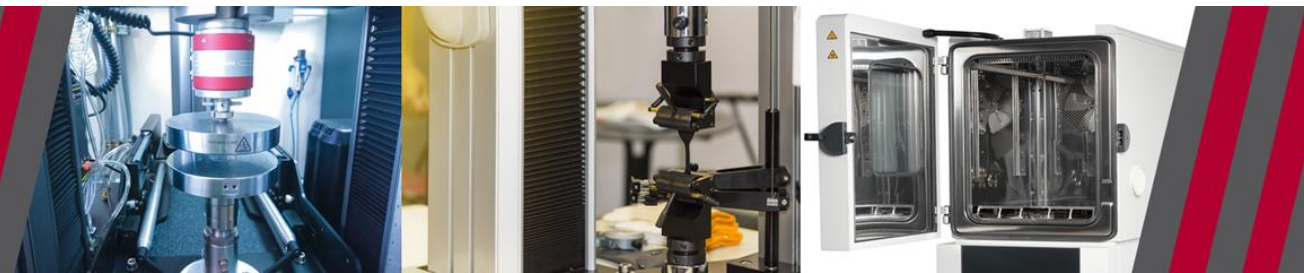


# Testen op Texel

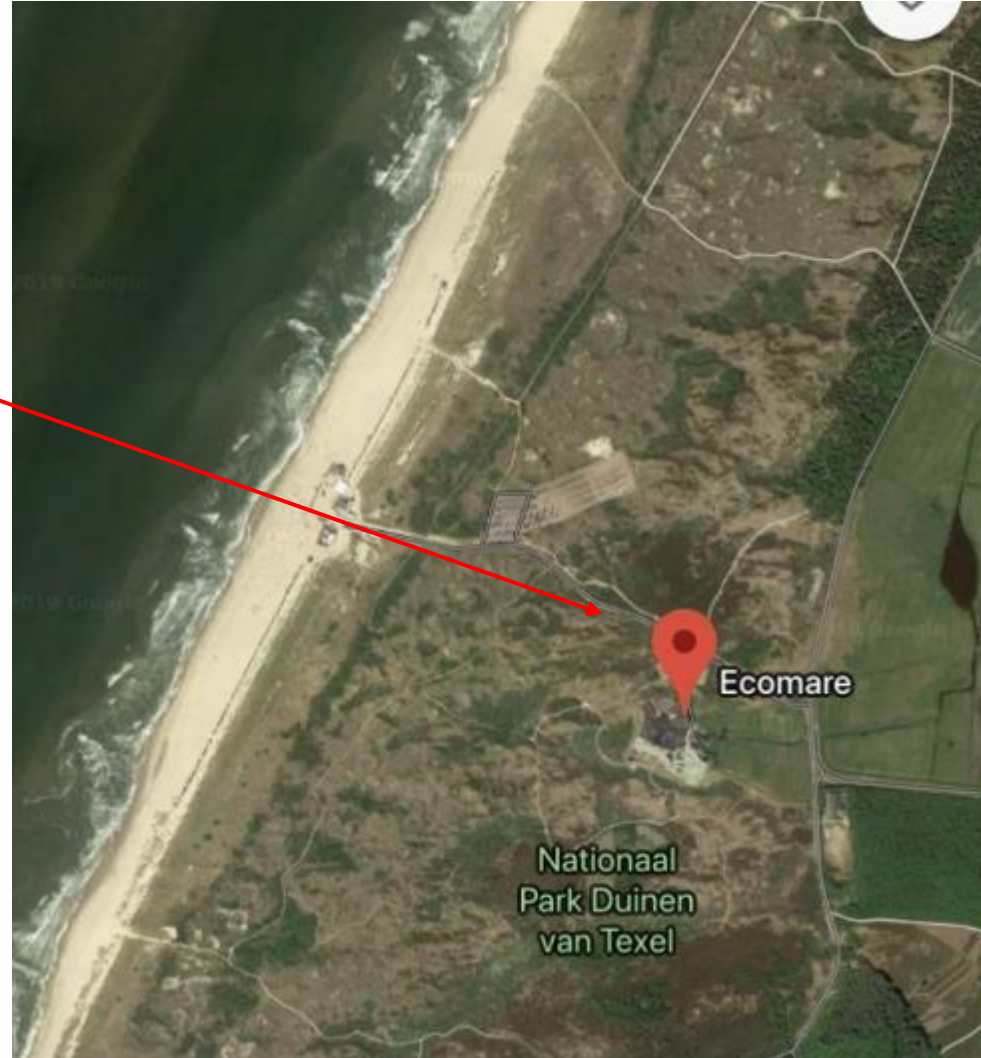
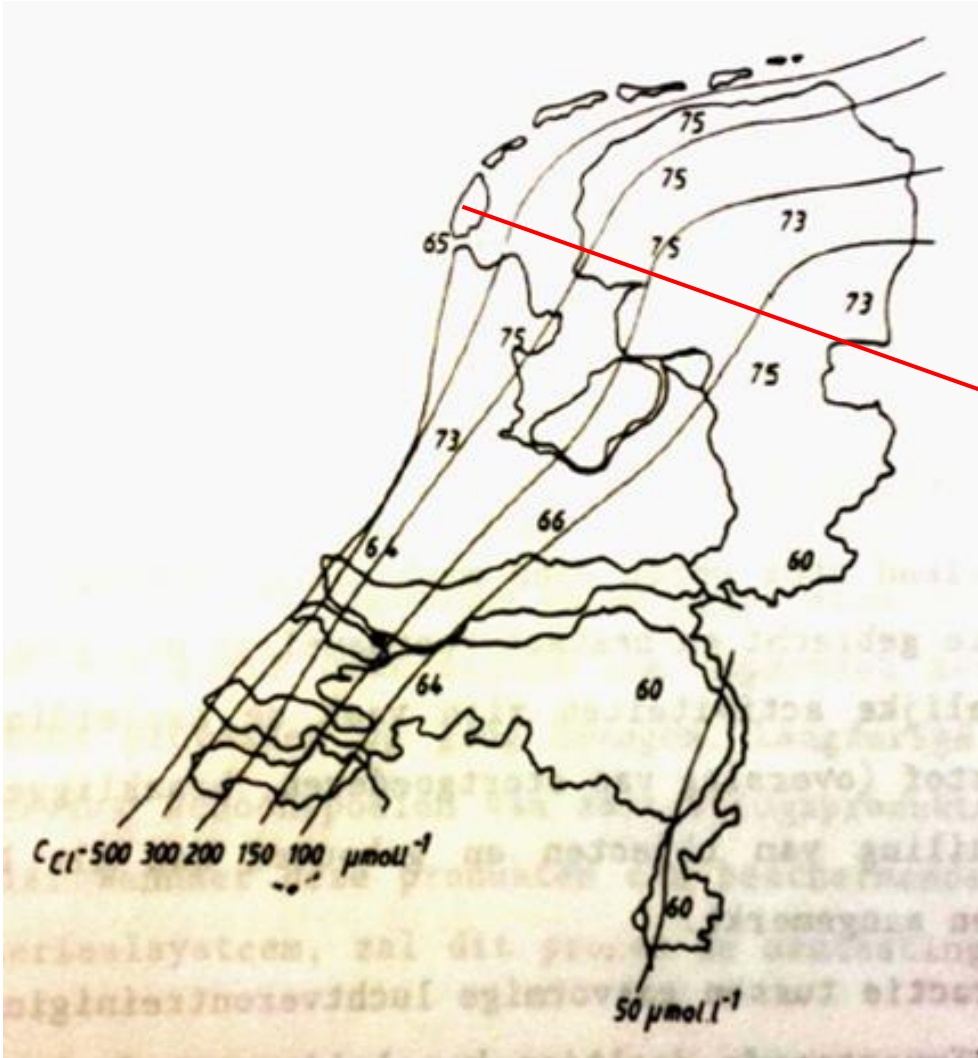
Boudewijn Jacobs @



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# Waarom Texel ?



# Test objecten



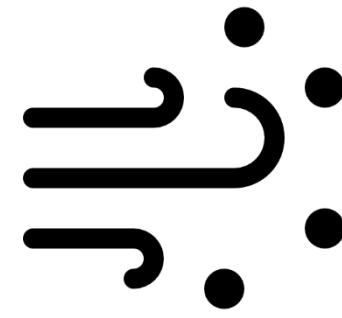
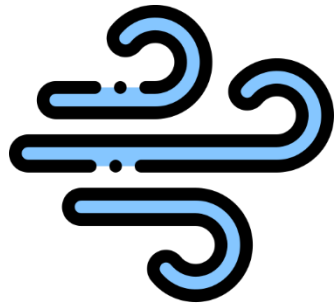
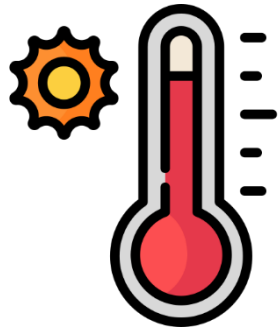
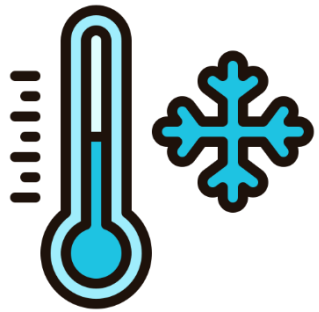


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# “door weer en wind”



@signify

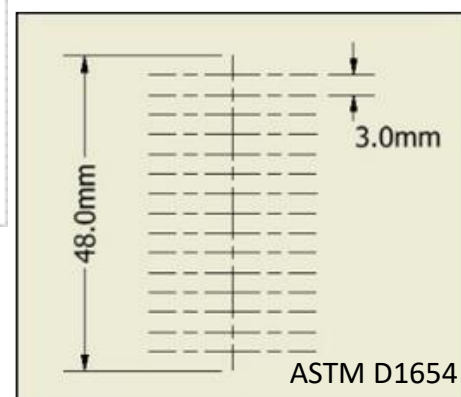
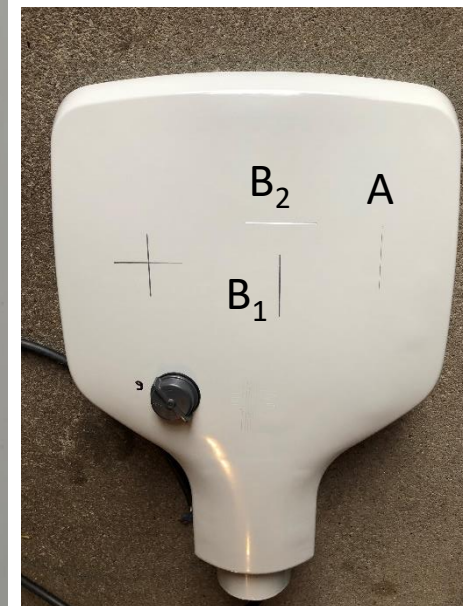
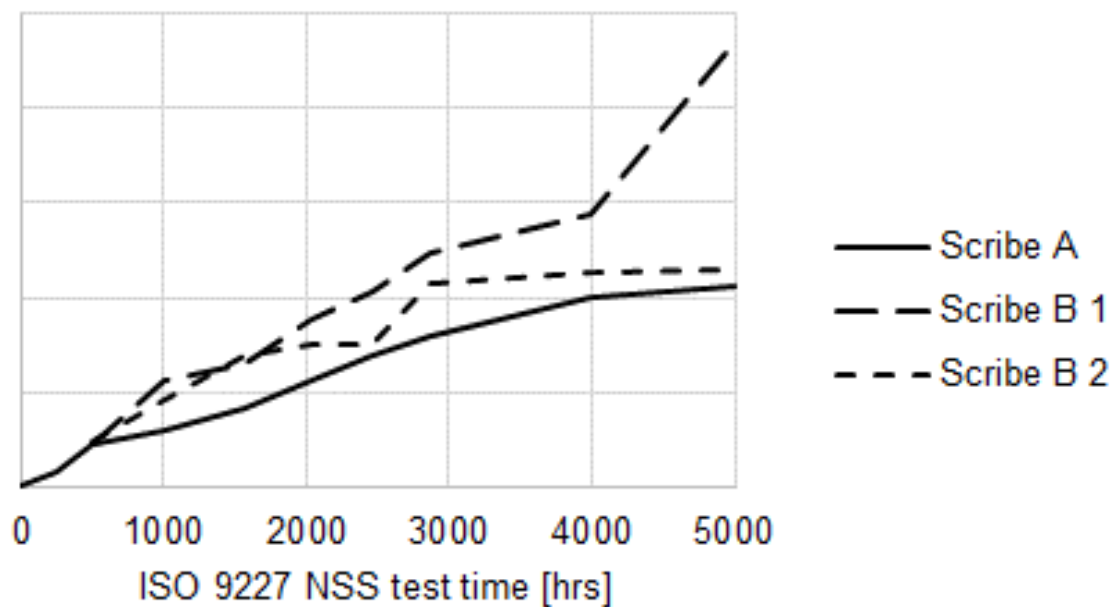


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# Ter vergelijk: Testen in het laboratorium: ISO 9227 NSS



mean creepage from scribe during ISO 9227 NSS corrosion testing



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# Ter vergelijk: Testen in het laboratorium: ISO 9227 AASS



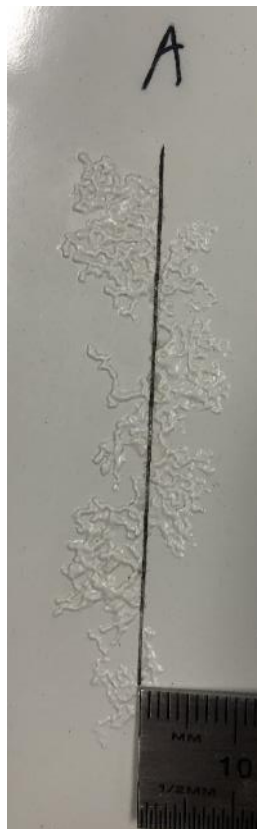
92 uur



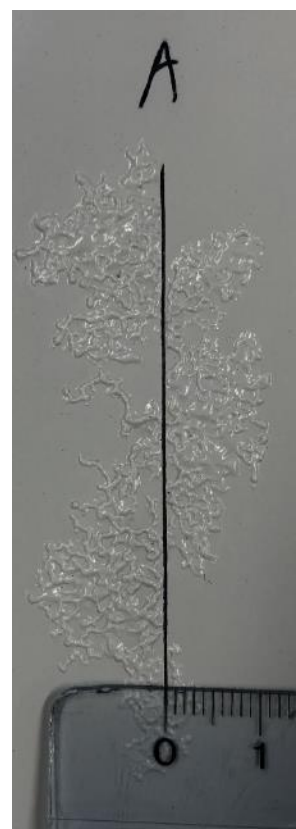
250 uur



500 uur



750 uur



1000 uur



 Signify

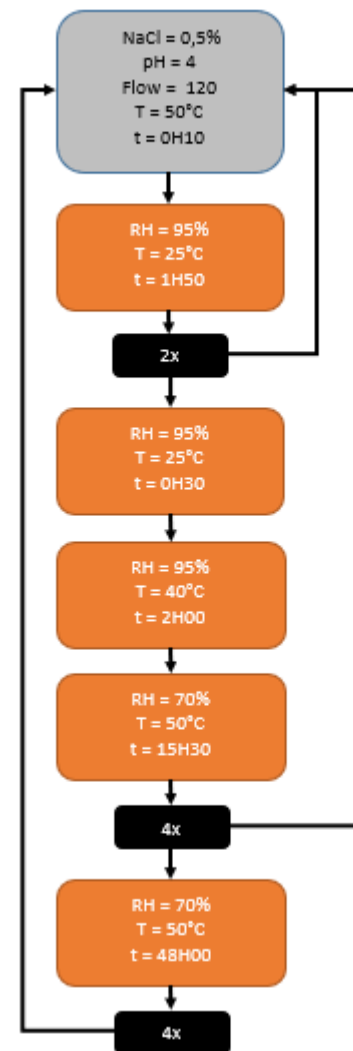


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# Ter vergelijik: Testen in het laboratorium: Volvo VCS 1029, 1449



Standard: Volvo VICT VCS1027,1449  
Duration: 42 days



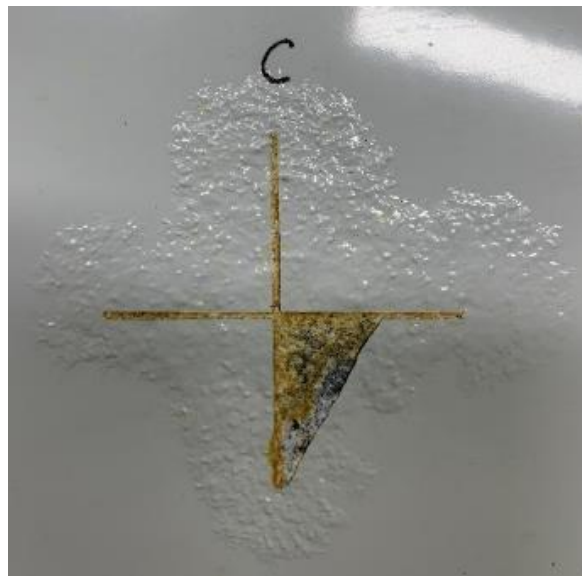
Signify



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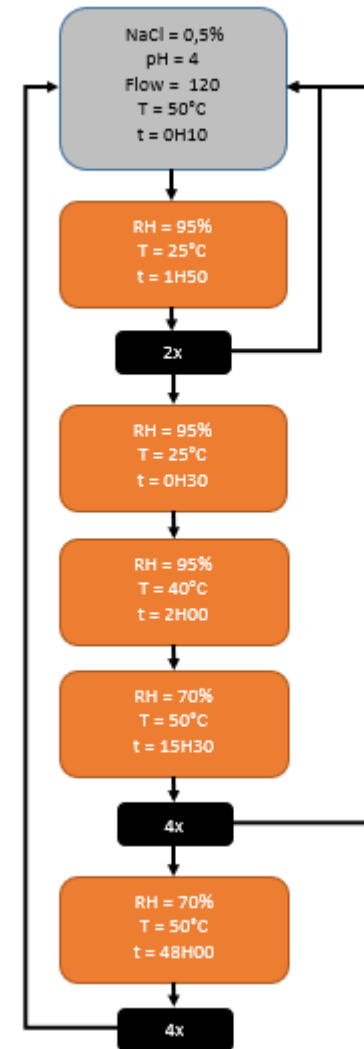


# Ter vergelijk: Testen in het laboratorium: Kunstmatig regenwater test



NaCl	5.0188 g/l
KCl	0.4474 g/l
CaCl <sub>2</sub> ·2H <sub>2</sub> O	2.2053 g/l
MgCl <sub>2</sub> ·6H <sub>2</sub> O	2.5414 g/l
Na <sub>2</sub> CO <sub>3</sub> ·10H <sub>2</sub> O	0.5723 g/l
NH <sub>4</sub> NO <sub>3</sub>	4.0020 g/l
Na <sub>2</sub> SO <sub>4</sub> ·10H <sub>2</sub> O	7.1727 g/l
CuCl <sub>2</sub> ·2H <sub>2</sub> O	0.0068 g/l
FeCl <sub>3</sub>	0.1622 g/l
NiCl <sub>2</sub> ·6H <sub>2</sub> O	0.0048 g/l
NH <sub>4</sub> F·HF	0.0428 g/l
NaHSO <sub>4</sub> ·H <sub>2</sub> O	2.1539 g/l
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1.6022 g/l

Stand: Volvo VICT VCS1027,1449  
Duration: 42 days

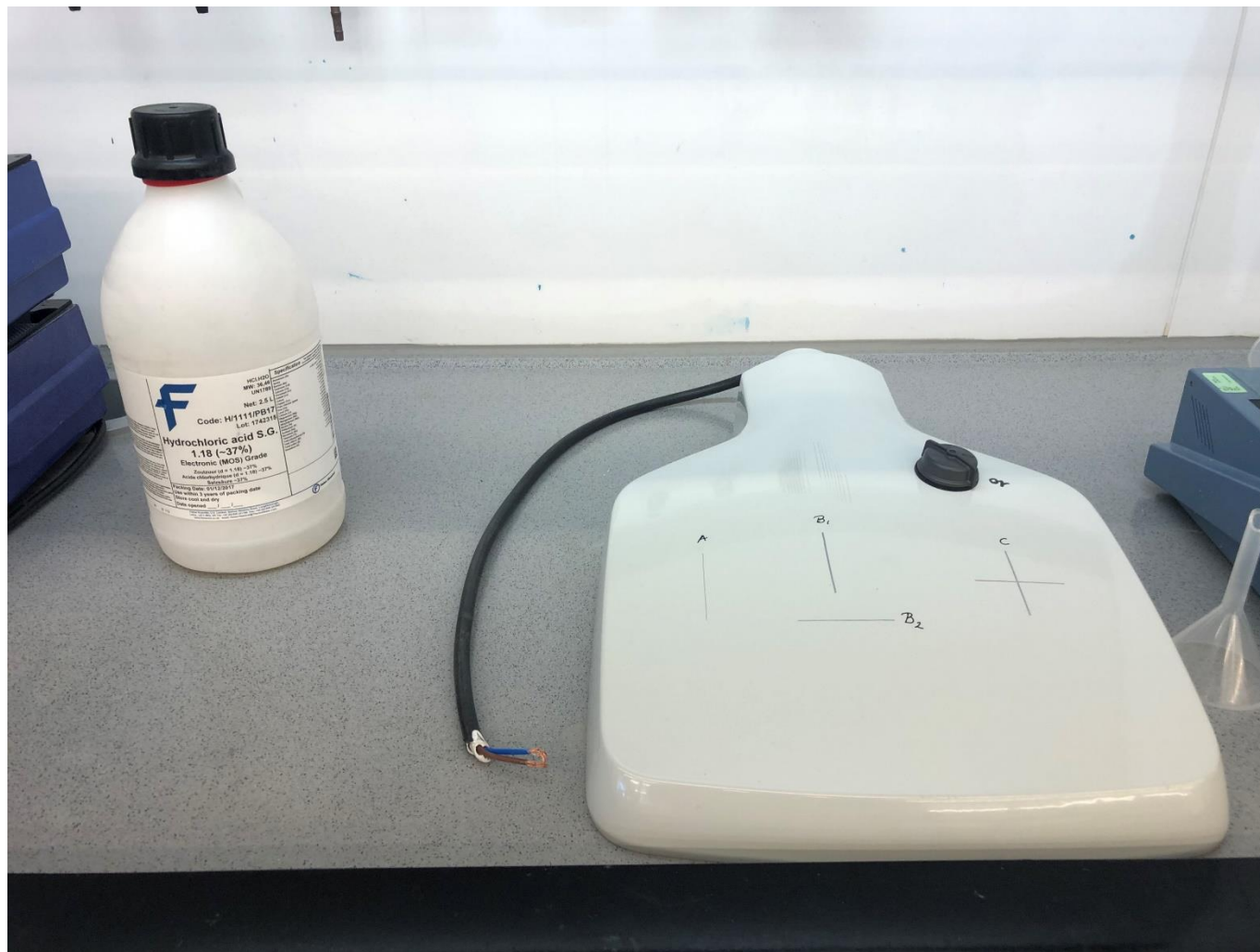


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# Ter vergelijk: Testen in het laboratorium: ISO 4623-2 filiform corrosion

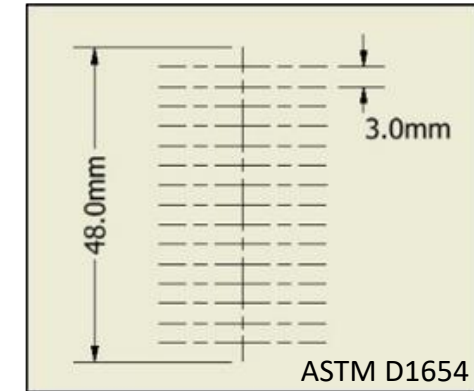
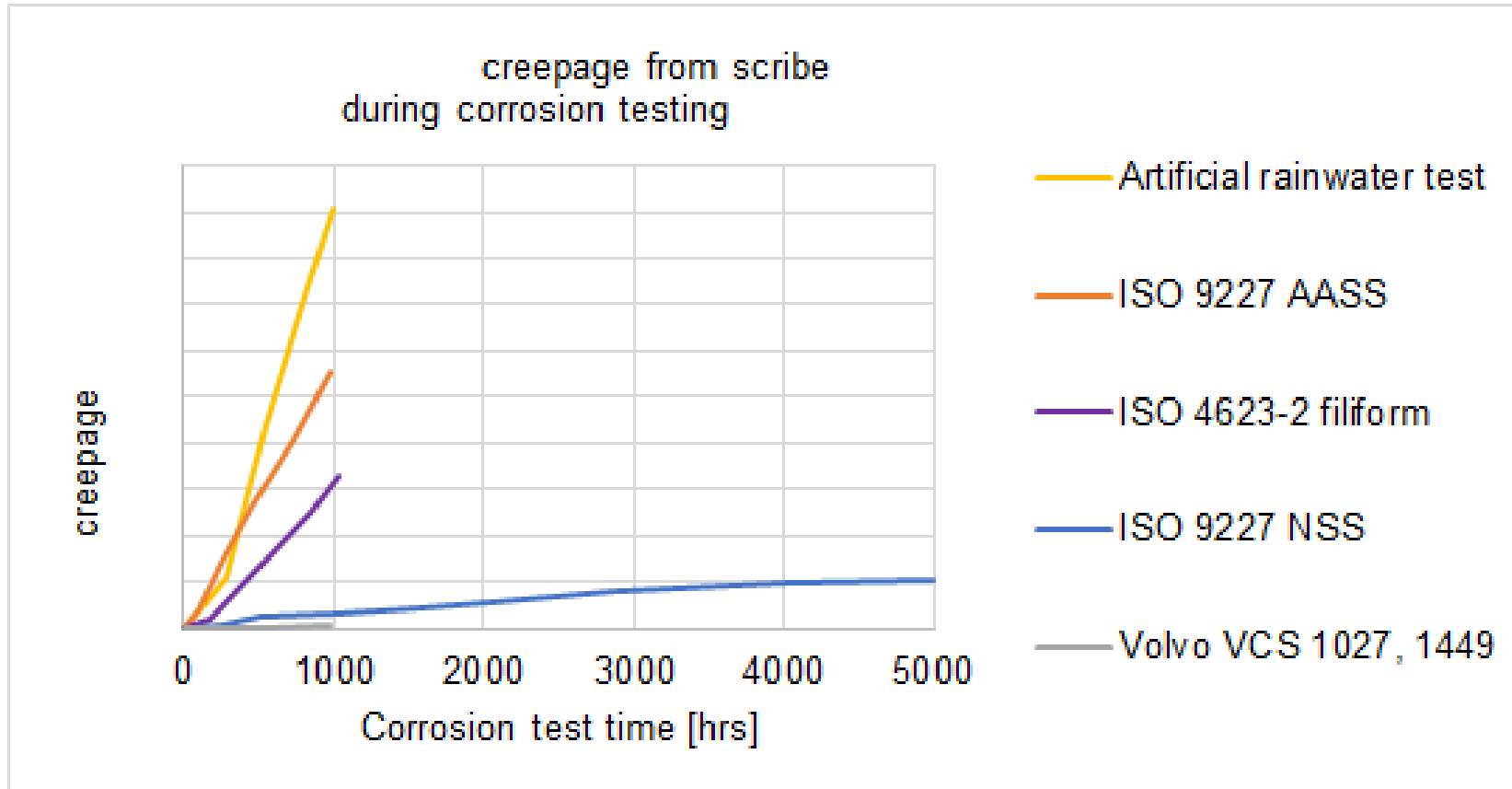


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## Ter vergelijk: Testen in het laboratorium: Filiform corrosie groei



Corrosion test	Acceleration compared to ISO 9227 NSS
ISO 9227 AASS	32
Volvo VCS 1027, 1449	< 0.1
Filiform corrosion test	10
Artificial rainwater	25

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PLOT SHOWCASE

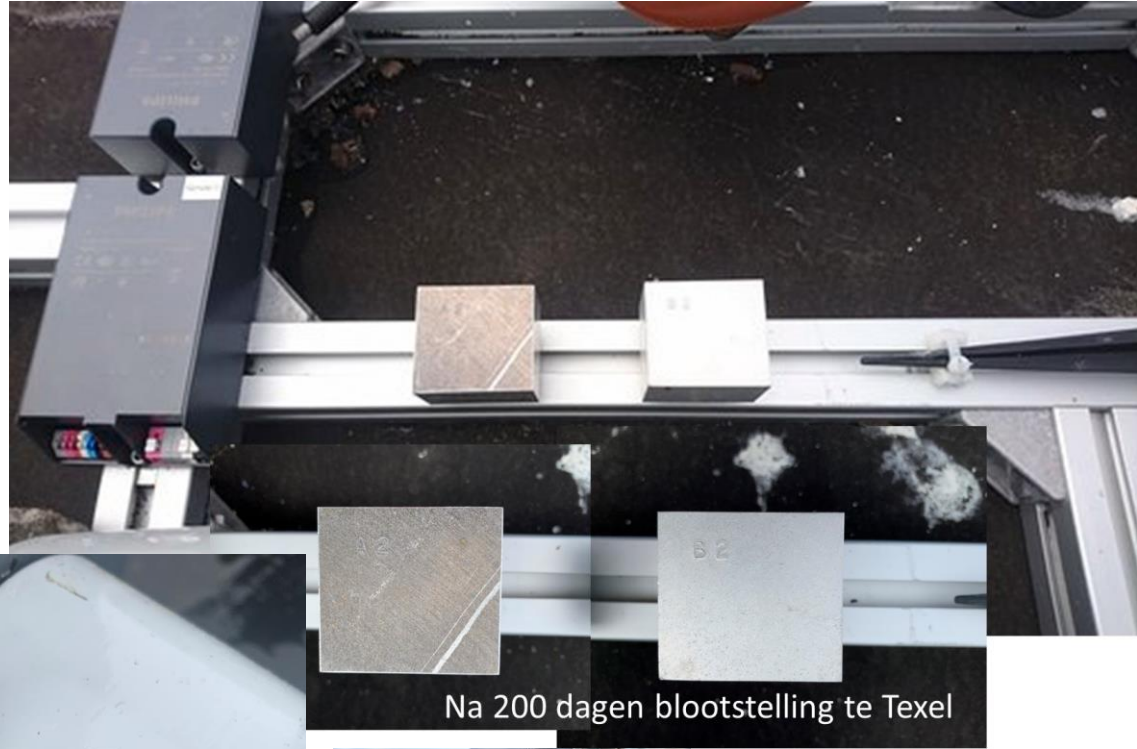
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# Testresultaten op Texel

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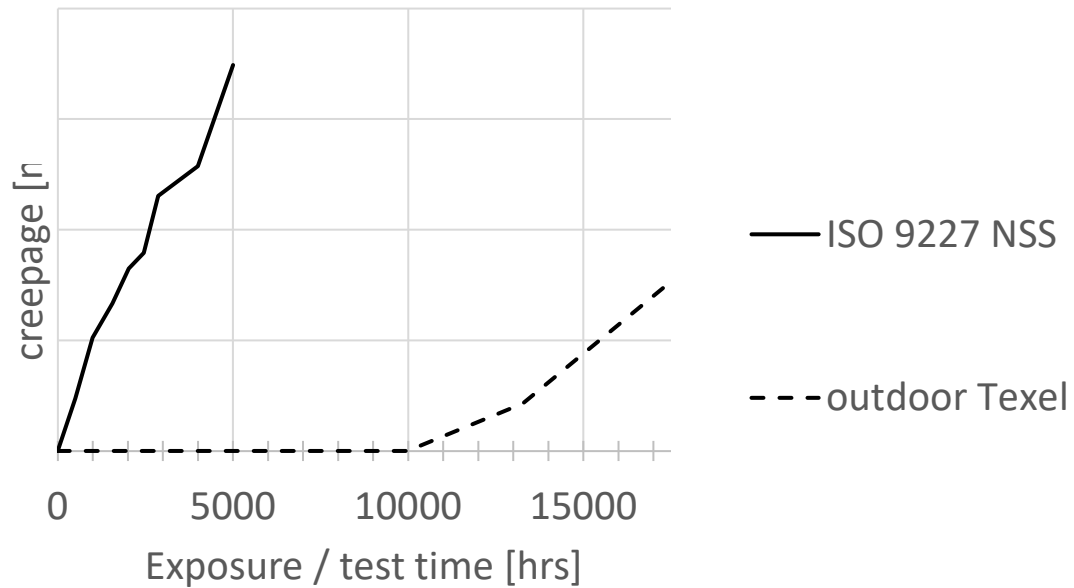
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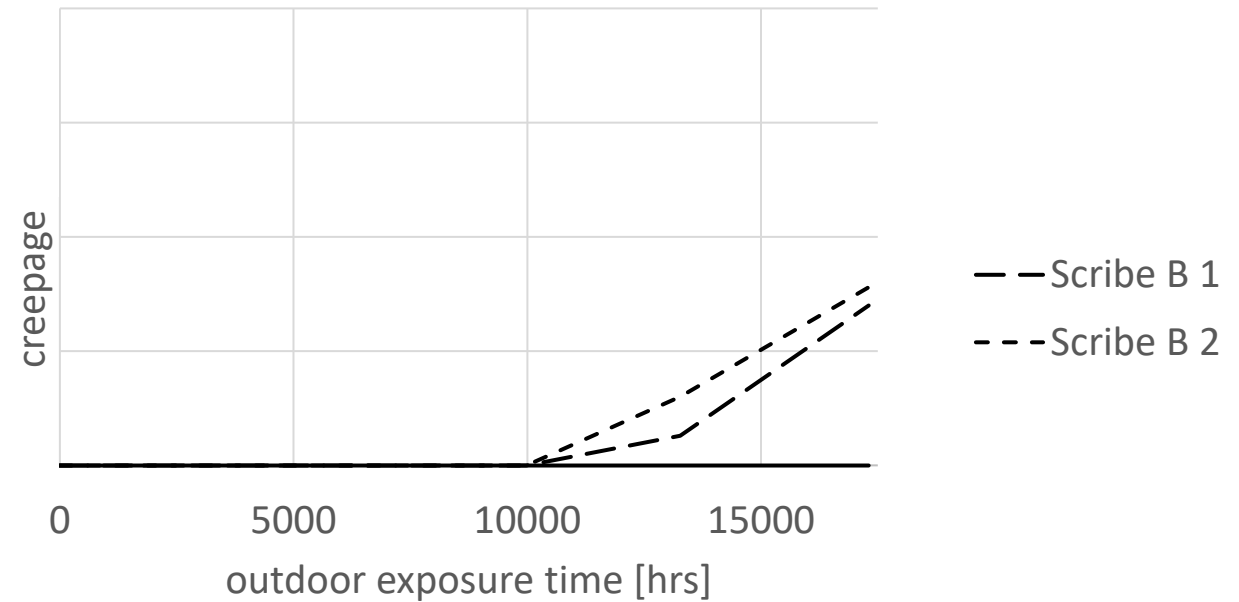
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# Filiform corrosie

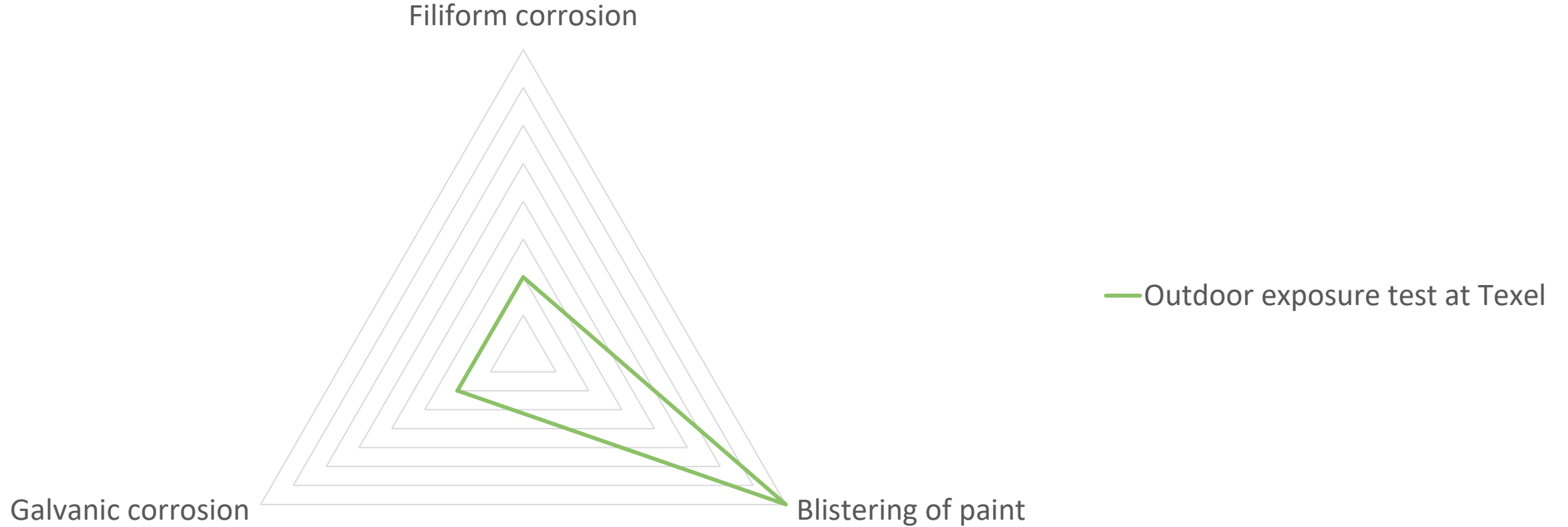
Mean creepage from scribe B  
ISO 9227 NSS vs Outdoor exposure



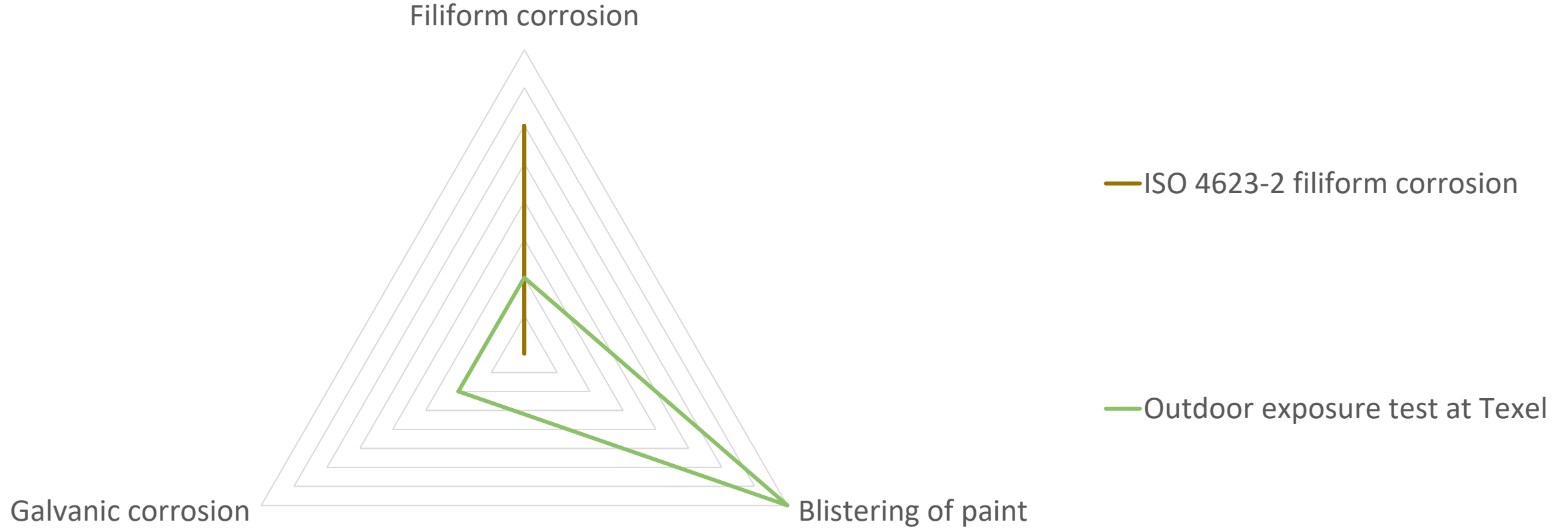
Mean creepage from scribe during  
outdoor exposure Texel



# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel

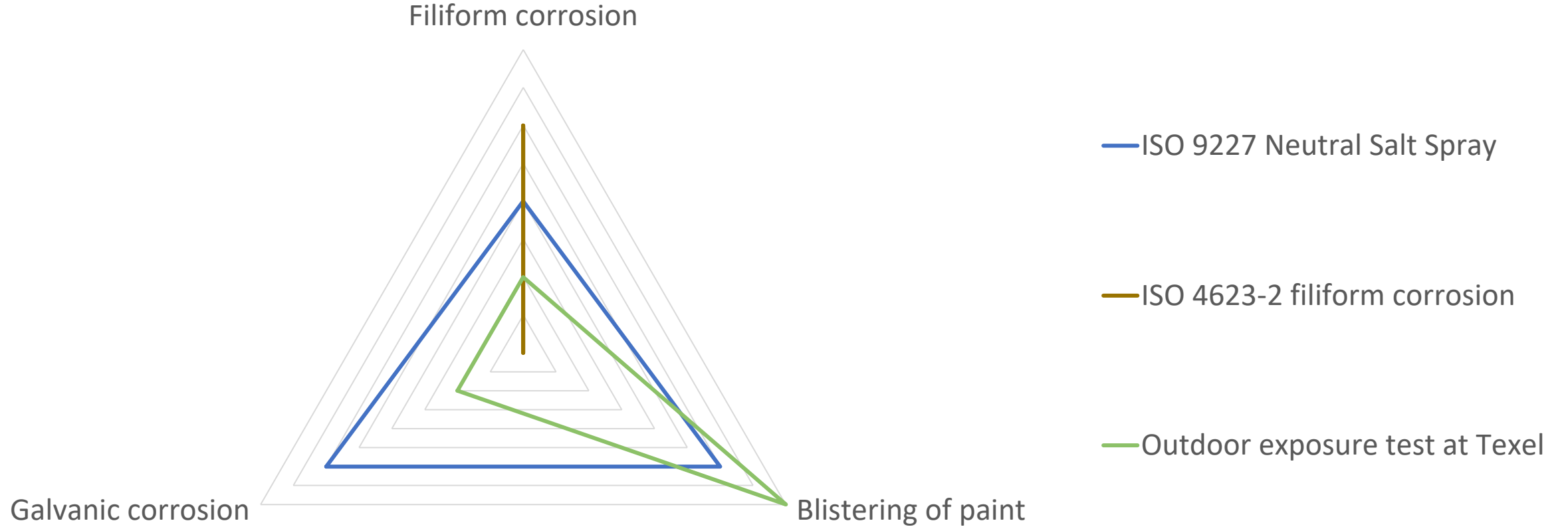


# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel





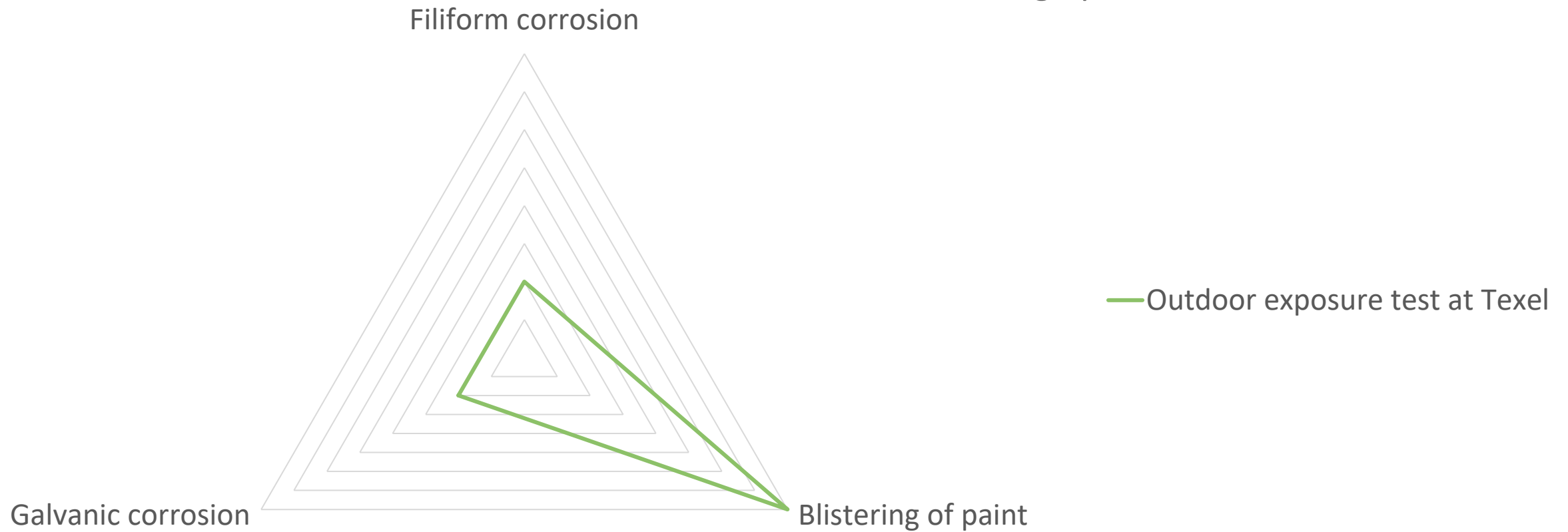
# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel



# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel



# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel

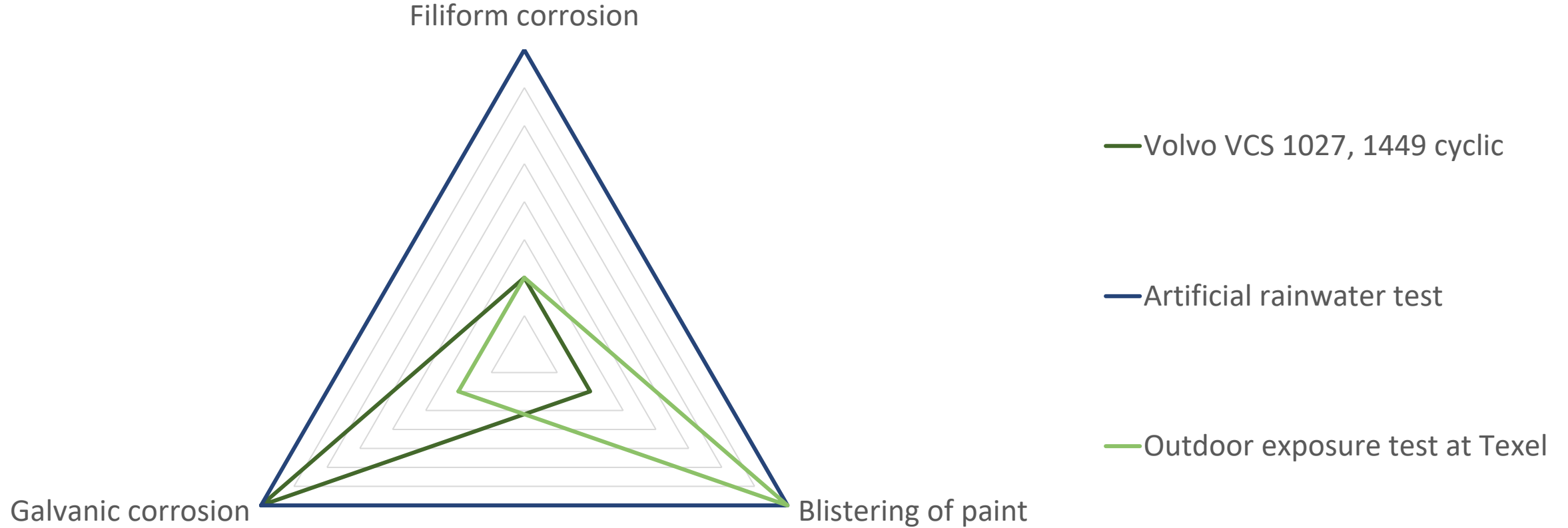


**PLOT SHOWCASE**  
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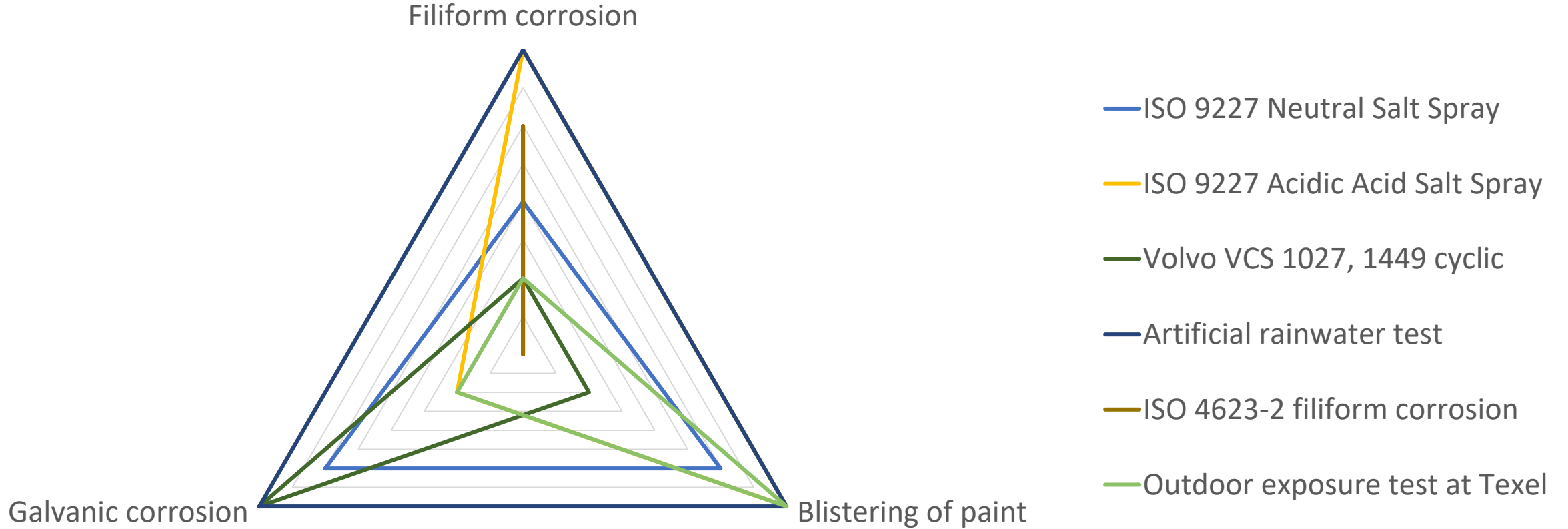
# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel



# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel



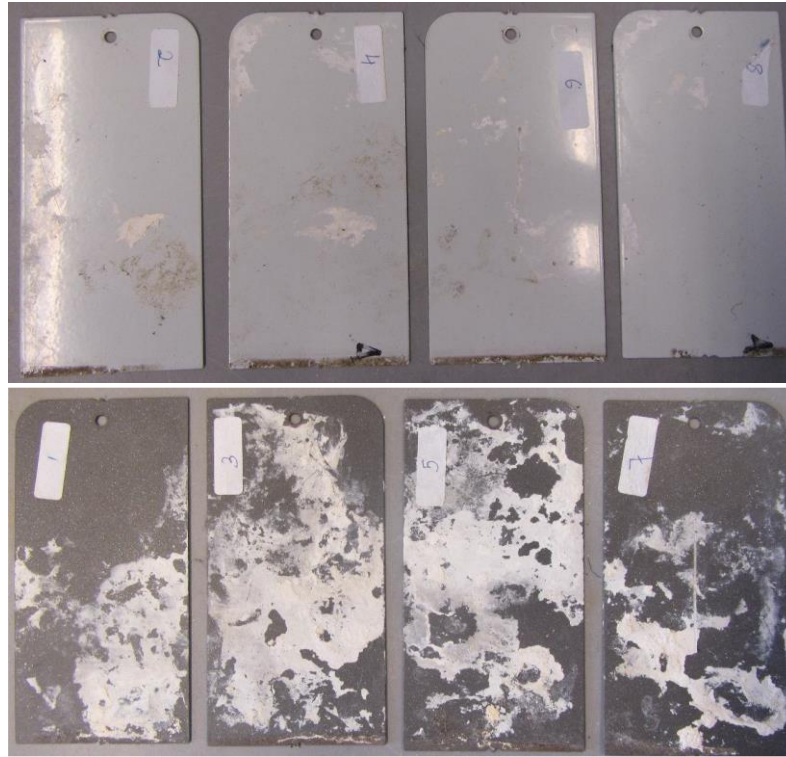
# Correlatie tussen laboratorium corrosie testen en blootstelling op Texel



# Coating Quality Measurements (CQM) d.m.v. Electrochemische Impedantie Spectroscopie



**C-Cube**  
International bv

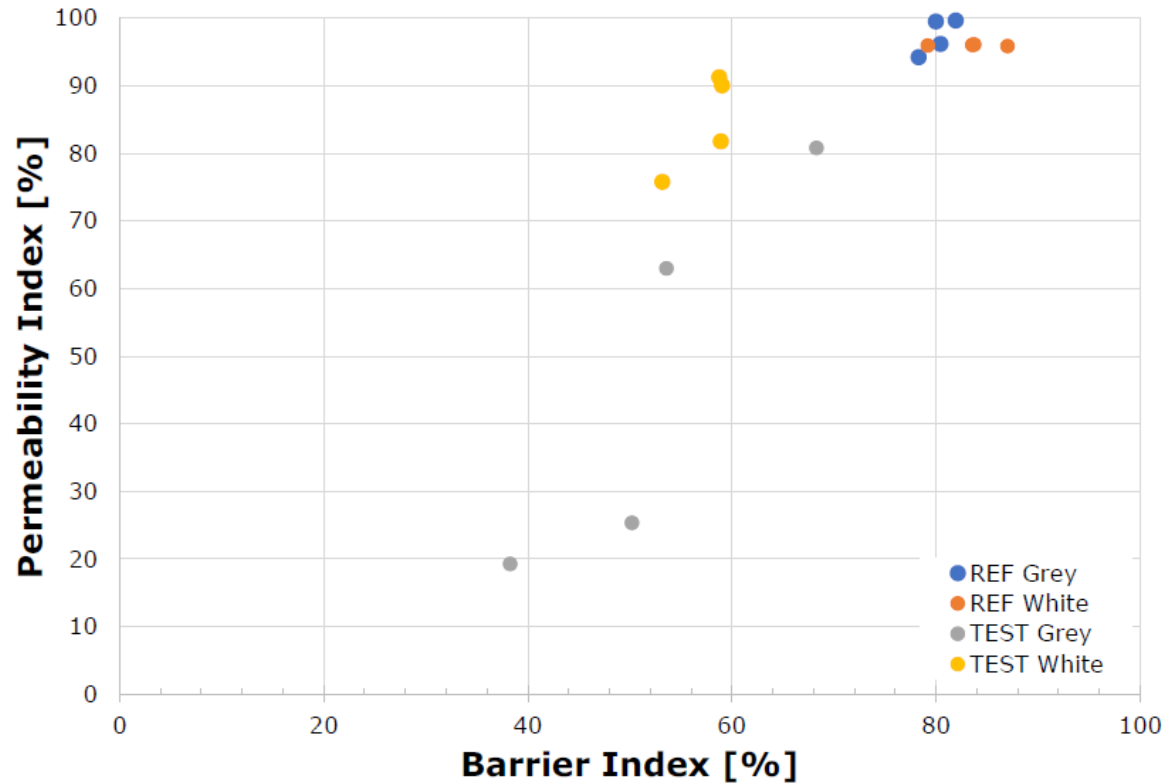


**Signify**



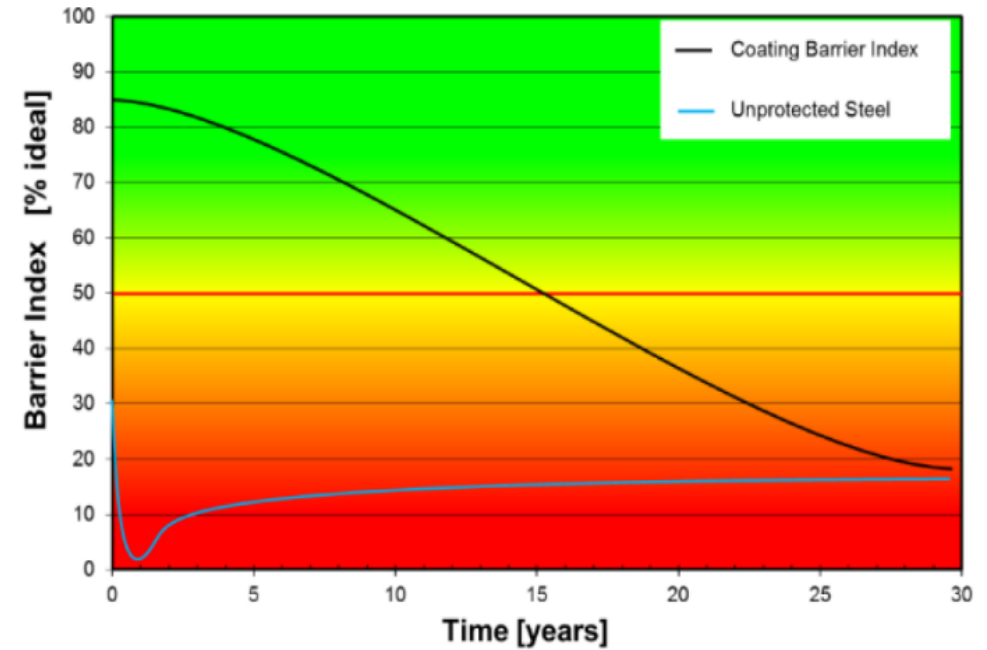
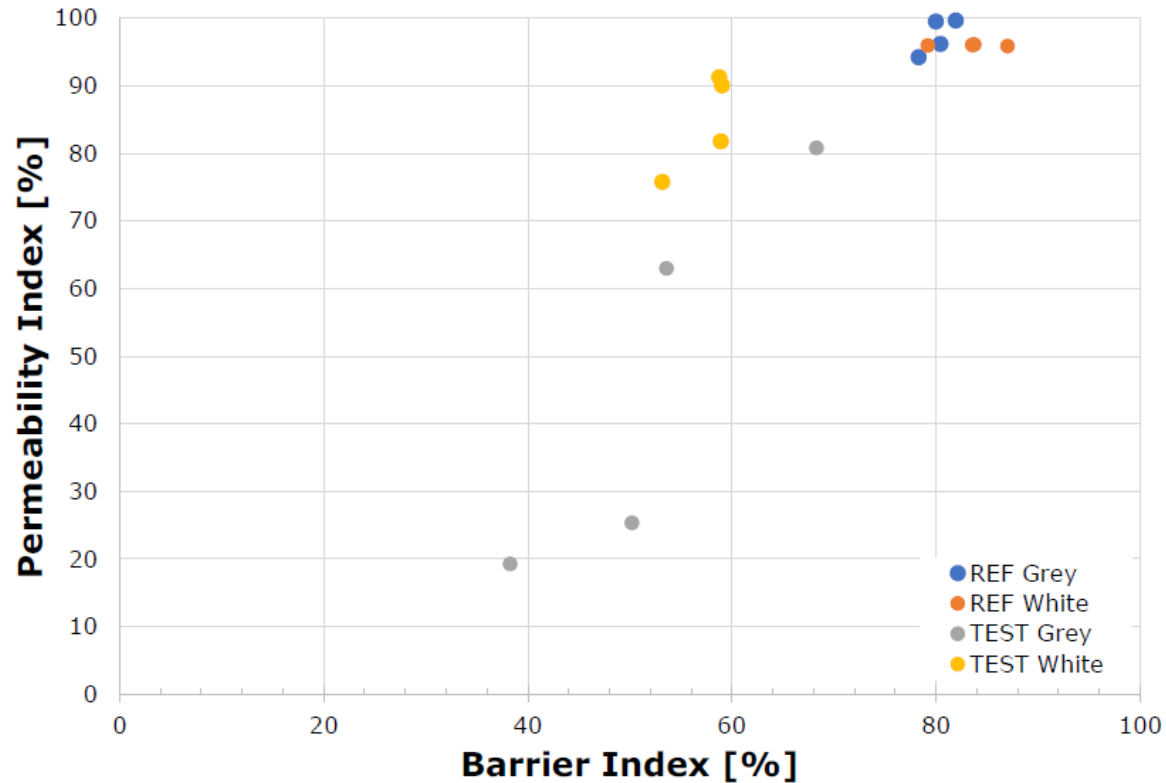
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# Coating Quality Measurements (CQM) d.m.v. Electrochemische Impedantie Spectroscopie

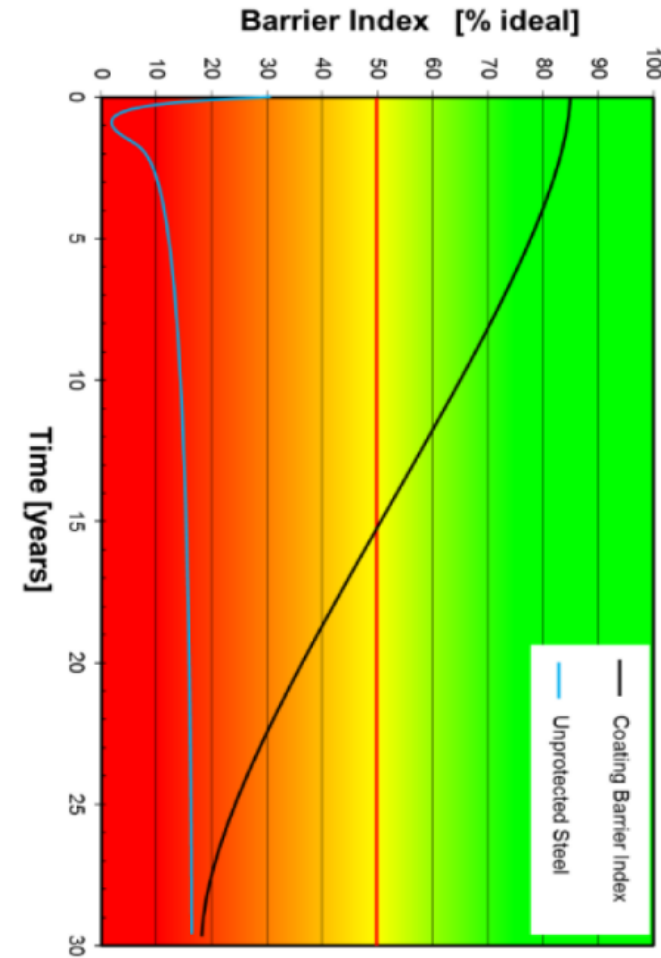
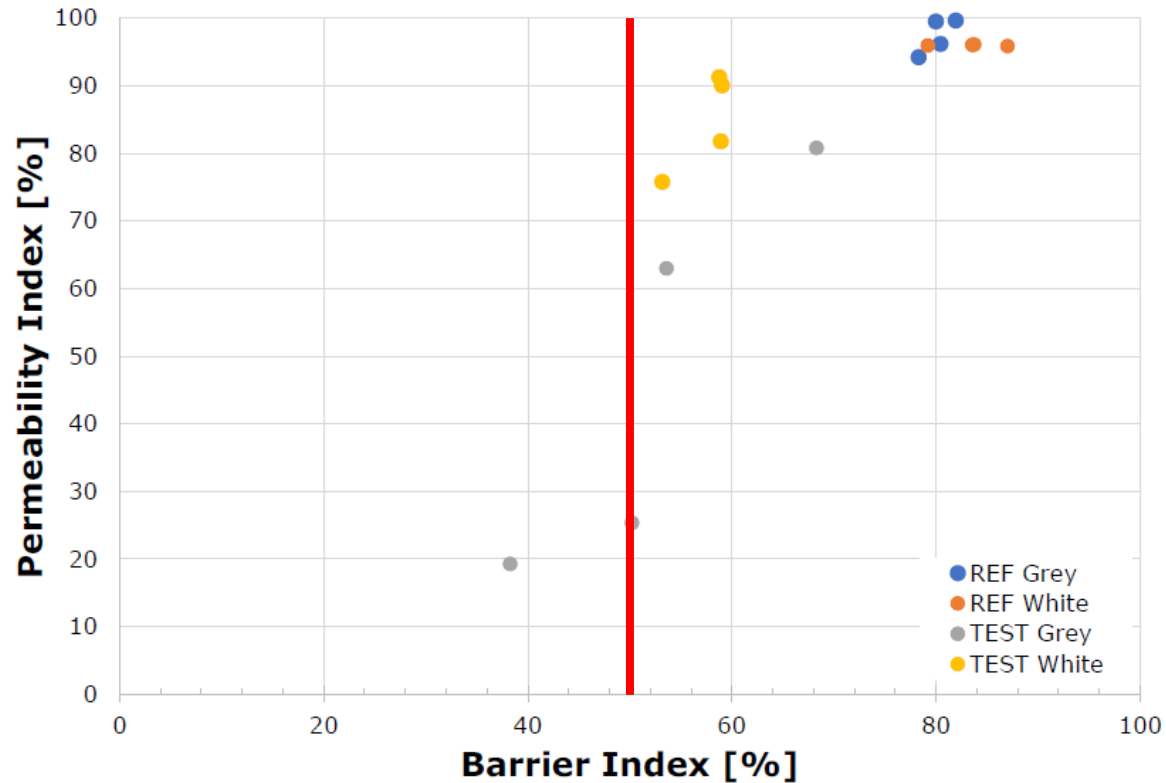




# Coating Quality Measurements (CQM) d.m.v. Electrochemische Impedantie Spectroscopie



# Coating Quality Measurements (CQM) d.m.v. Electrochemische Impedantie Spectroscopie



## Conclusies

- Outdoor testen levert veel informatie op ! Het geeft aan welke corrosie dominant is in de praktijk.

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## Conclusies

- Outdoor testen levert veel informatie op ! Het geeft aan welke corrosie dominant is in de praktijk.
- De correlatie tussen de uitgevoerde versnelde corrosie testen in de test laboratoria en de wijze waarop corrosie zich uit op Texel is gering.

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## Conclusies

- Outdoor testen levert veel informatie op ! Het geeft aan welke corrosie dominant is in de praktijk.
- De correlatie tussen de uitgevoerde versnelde corrosie testen in de test laboratoria en de wijze waarop corrosie zich uit op Texel is gering.
- Neem deel aan een PLOT werkgroep ! Gezamenlijk onderzoek geeft veel inzicht in de wijze waarop een ander bedrijf met een bepaald onderwerp omgaat. Het bevordert cross-learning.

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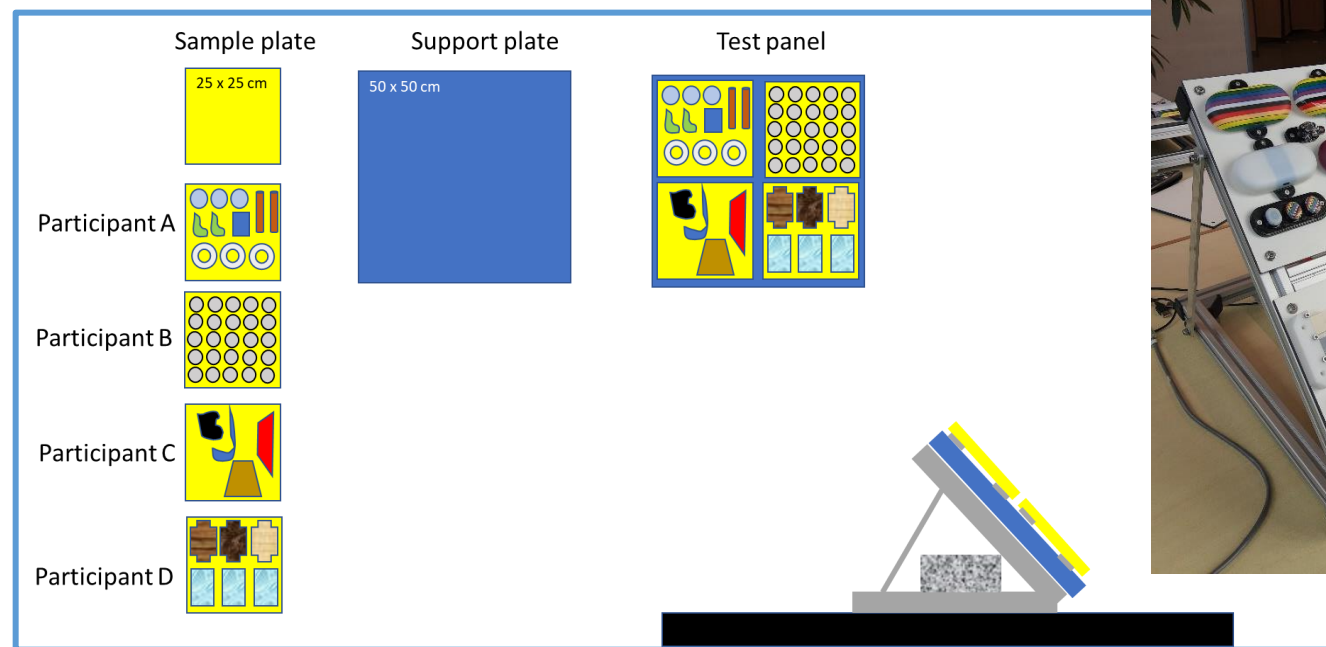
# PLOT Werkgroep Klimaat

## Hoe kunnen we laboratorium resultaten vertalen naar de levensduur in de praktijk?

Weathering = the effect of climate on materials/ products.

Solar testing = to determine the effect of solar radiation on materials/ products

ASTM G154/ ISO 4892-3: Plastics Fluorescent UV lamps	ASTM G155 ISO 4892-2: Plastics Xenon Arc sources	ISO 4892-2/ IEC 60068-2-5 simulated solar radiation at ground level and guidance for solar radiation testing and weathering
 Eurofins Materials Science		
0.76 W/m <sup>2</sup> (340 nm)	60 W/m <sup>2</sup> (300 nm - 400 nm)	50 W/m <sup>2</sup> (300-400nm)
1000 uur	1000 uur	1000 uur
8 hours radiation/ 4 hours condensation	102 minutes radiation with dry conditions/ 18 minutes radiation and wetting	Continuous radiation with wetting or condensation
UV test	Solar test	Solar test



### Test locaties:

- Heerenveen
- l'Aquila (Italië)
- Sunnyvale (VS)
- Penang (Maleisië)

### Verslagen van bijeenkomsten:

<https://fhi.nl/plot/werkgroep-klimaat>





# Boudewijn Jacobs

PLOT bestuurslid



Research Scientist Reliability

+ 31 (0) 6 2001 1530

High Tech Campus 7

5656 AE, Eindhoven, The Netherlands

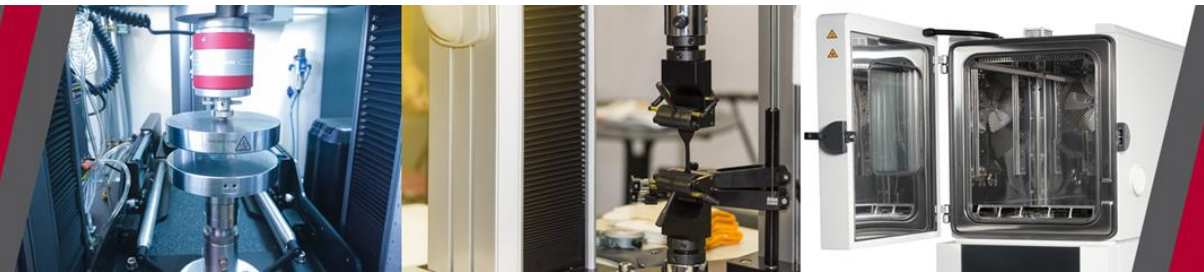
The Signify logo, consisting of a green '@' symbol followed by the word 'signify' in a lowercase, green, sans-serif font.



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## Volgende bijeenkomst PLOT werkgroep Klimaat



**Locatie:**

M2Lab

Magazijnweg 17-02

5071 NW Udenhout

Aanmelden telefonisch of per e-mail  
naar Marcel van Doesburg

[marcelvandoesburg@eurofinseag.com](mailto:marcelvandoesburg@eurofinseag.com)

Tel nr: +31 (0) 6 11864122

**7 november 2023**

M2Lab te Udenhout

12:30 – 17:00 uur

***UV/ Solar radiation and weathering testing***

**PLOT SHOWCASE**

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