



ZERUST[®] EXCOR[®]

ZERUST[®] FLANGE SAVER[®]

PROTECT FLANGE ASSEMBLIES WITH A CORROSION INHIBITING WRAP



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ZERUST[®] VCI TECHNOLOGY

Zerust® Flange Saver®

@FPSO OFFSHORE - PETROBRAS



ZERUST® EXCOR

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Zerust® Flange Saver® - Valve

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Zerust® Transparent Flange Saver®

4 years protection against corrosion



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Zerust® Transparent Flange Saver®

@MODEC oil offshore platform - Brazil



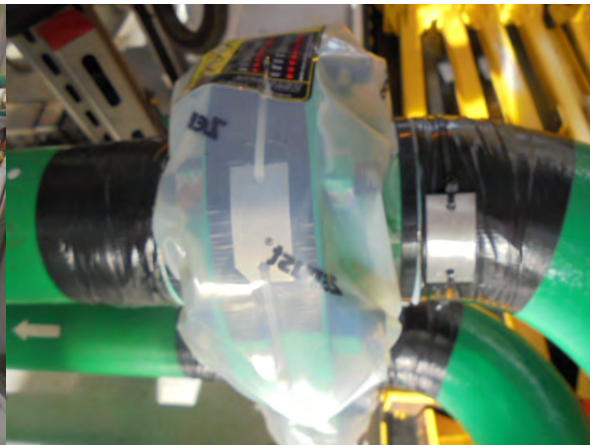
ZERUST® EXCOR®



Zerust® Transparent Flange Saver® @MODEC oil offshore platform - Brazil



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Zerust® Transparent Flange Saver®

Benefits

Transparent film allows visibility to flange assemblies inside the enclosure

Resistant to UV and harsh climatic conditions (up to 4 years of exposure)

Proven Zerust Vapor Corrosion Inhibitor (VCI) in film.



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ZERUST EXCOR

Material Performance

Temperature:	20 – 75°C
Service Life:	4 years
UV Resistance:	4 years
Corrosive Environment	Cl ⁻ , H ₂ S, SO ₂ e CO ₂
Relative Humidity:	100%
<i>Shelf Life:</i>	4 years

Zerust® Transparent Flange Saver®

*Result @Seaside environment - PETROBRAS
TRIAL TEST WITH SAE1010 COUPON*



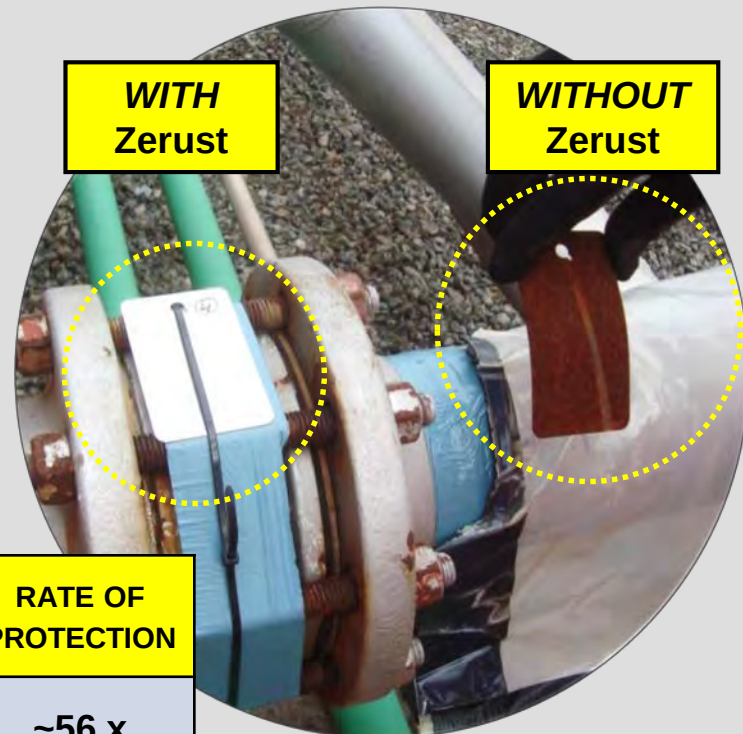
ZERUST EXCOR



INICIAL



AFTER 7 MONTHS



TRIAL TEST WITH SAE 1010 COUPON	INSIDE	OUTSIDE	RATE OF PROTECTION
CORROSION RATE (mm/years)	0,001090	0,061190	~56 x

PETROBRAS GLOBAL CONTRACT

for Zerust® Transparent Flange Saver



COD. ZERUST	NM PETROBRAS	BITOLA FLANGE Norma ANSI B16.5
FLA1Z001	111.126.42	1/2" até 3/4"
FLA1Z002	111.126.45	1" até 1. 1/2"
FLA1Z004-2	111.126.68	2" até 2.1/2"
FLA1Z004-3	111.127.05	3"
FLA1Z004	111.127.06	4"
FLA1Z006-5	111.127.17	5"
FLA1Z006	111.127.18	6"
FLA1Z008	111.127.19	8"
FLA1Z010	111.127.20	10"
FLA1Z012	111.127.21	12"
FLA1Z016-14	111.127.22	14"
FLA1Z016	111.127.23	16"
FLA1Z018	111.127.25	18"
FLA1Z020	111.127.26	20"
FLA1Z024	111.127.49	24"
FLA1Z026	111.127.50	26"
FLA1Z036	111.127.51	36"
FLA1Z040	111.127.52	40"

PETROBRAS SUPPLY

NEW GLOBAL CONTRACT

Nº: 4600542488



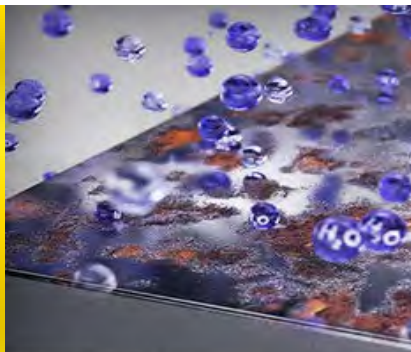
Zerust® VCI Technology



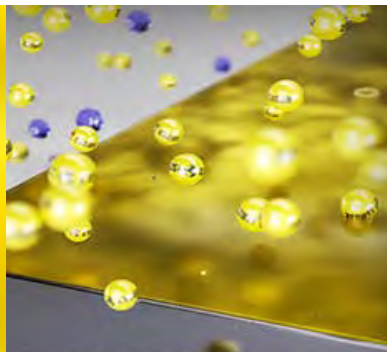
ZERUST EXCOR

PRINCIPLE OF ACTION

VCI MOLECULES



CORROSION ON THE SURFACE



ACTION OF VCI MOLECULES ONTO METAL SURFACE

Zerust ICT products prevent corrosion in several ways:

1. By acting as a protective **barrier from external dirt** and abrasion, and also as a **barrier to help block the diffusion of corrosive acid gas pollutants** from outside of ICT packaging material (such as sulfur dioxide or hydrogen sulfide) - thereby preventing contact of these corrosive gases with enclosed metal surfaces.
2. By vapor corrosion inhibitors that **passivate the electron flow between the anodic and cathodic areas** on metal surfaces and interrupt the electro-chemical corrosion process.
3. By adding **water repulsion properties to the metal surface**, which inhibit water from permeating the metal surface and providing the electrolyte for corrosion reactions.

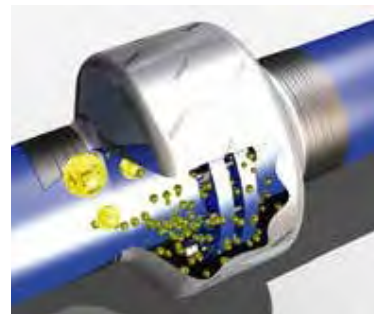


WITHOUT ZERUST®

TESTE – SALT SPRAY ASTM B117



WITH ZERUST®





Zerust® FLANGE SAVER™

Benefits & Characteristics

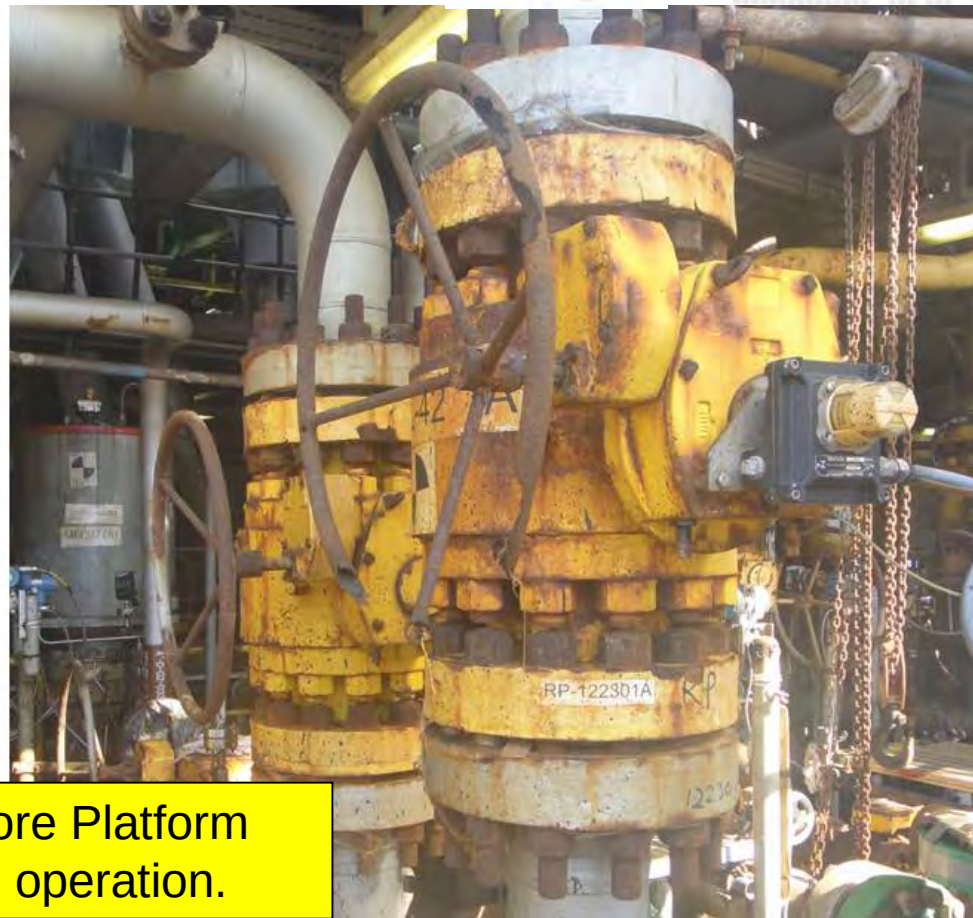
- ✓ Maintenance time is significantly reduced
- ✓ Maintenance costs can be more than halved*
- ✓ Quick and easy installation and replacement
- ✓ No electrical devices or heating equipment required
- ✓ No special training or certification required for installation
- ✓ Effective life of up to 4 years before replacement (depending on client requirements).
- ✓ Resistant to UV and harsh climatic conditions
- ✓ Transparent film allows visibility to flange assemblies inside the enclosure



Corrosion problems???



ZERUST EXCOR



FPSO Oil Offshore Platform
After 4 years in operation.

QUESTIONS?



for more information contact

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