

APPLICATION SOLUTION 01

Storage Tank Base and Annular Plate

Problem, corrosion mechanism, recommended system, product combination and application procedure.

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Tank projects listed

100 000 m³

Largest referenced

St2

Preparation level

Cold

Applied



01 The Problem

Storage Tank Base Corrosion Protection

The junction between the tank shell, the annular plate and the concrete or bituminous foundation is the shortest-lived detail on an above-ground storage tank. Rainwater runs down the shell and is retained in the chime; the foundation edge holds moisture and debris; and the steel moves relative to the foundation as the tank is filled and emptied. A rigid coating applied across that joint is loaded in a way it was never designed for.

Corrosion risk

- Under-plate corrosion where water is held between the annular plate and the foundation, out of sight and out of reach of inspection.
- Cracking and disbondment of rigid coatings and sealants at the dynamic shell-to-foundation joint.
- Concentration of corrosion at the chime edge, where coating thickness is hardest to control.
- Repair windows limited by tank operation: hot work is normally not permitted and blasting near a live tank farm is difficult to justify.



Chime preparation and profiling



Completed tank edge system



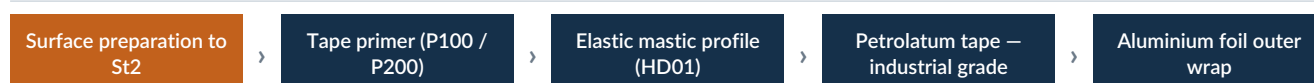
Above-ground storage tank

02 Recommended System

Why this configuration

A petrolatum system solves the problem the way the geometry demands. The primer displaces residual moisture and wets the steel; the mastic builds a smooth, self-supporting profile across the chime and the foundation transition; the tape seals the assembly and remains plastic, so it accommodates tank movement instead of resisting it; and the outer wrap takes the ultraviolet and mechanical load. Nothing cures, so the tank can return to service without a coating schedule.

System structure



Product combination and application procedure

Stage	Product	Procedure
Prepare	—	Remove loose rust, scale, old coating and debris from the chime, the lower shell and the foundation edge. St2 hand or power tool preparation. Remove standing water.
Prime	Tape primer P100 (horizontal) / P200 (vertical shell)	Continuous film by stiff brush or gloved hand, worked into pitting and the plate-to-foundation gap.
Profile	High-performance elastic mastic (HD01)	Build a self-supporting fillet across the annular plate edge and the shell-to-foundation transition. Feather all edges.
Seal	Petrolatum tape — industrial grade, 100–300 mm	Wrap the chime and the lower shell with a minimum 55 % overlap. Smooth by gloved hand to remove air.
Protect	Aluminium foil outer wrap tape	Reflective outer layer over the exposed section; seal all terminations and inspect the seams.

Zhuohuang systems are modular. Overlap, tape width, number of layers and the protective outer wrap are confirmed for each asset, and components are added or omitted according to substrate condition, geometry and exposure. Where a project specification or acceptance standard applies, its requirements take precedence over this general sequence.

Choosing the protective outer layer

The outer wrap is selected for the exposure, not fixed by the primary tape. Three outer wrap materials are manufactured in-house, so the outer layer can be matched to ultraviolet, soil stress and handling risk.

Outer wrap option	When it is selected
Aluminium foil outer wrap	Standard choice for the exposed chime and lower shell — reflective, UV-resistant and maintainable.
PE outer wrap	Where the detail is below grade or covered by the foundation apron and UV is not a factor.
No outer wrap	Where the wrapped detail is fully enclosed and not exposed to sunlight or mechanical traffic.

03

Key Benefits and Evidence

What the customer gets, and what supports it

- No hot work and reduced surface preparation (St2) – the tank farm stays live.
- No curing time; the detail is complete when the last layer is applied.
- Non-curing materials accommodate fill-and-empty movement at the joint.
- Flame-retardant classified petrolatum tape – classification B to GB/T 8624-2006, verified on the general petrolatum tape sample (report CTICAQ4512401550823164BR).
- The system can be locally opened, inspected and re-wrapped during planned maintenance.
- 1 000 h neutral salt spray without rust on the tape (GB/T 10125).

Typical applications

- Crude oil and product storage tank annular plates
- Tank chime and shell-to-foundation transitions
- Tank farm pipework nozzles and bottom connections
- Airport fuel depot and terminal storage tanks

Field reference

OILTANKING · QINGDAO, SHANDONG, CHINA

Asset	Storage tank annular edge
System	Petrolatum tape system
Reference	Reference date 5 November 2021

Challenge. The tank shell-to-foundation transition is exposed to rainwater, retained moisture and movement between full and empty operating conditions. Rigid coating details may crack or lose adhesion at this dynamic edge.

System applied. Petrolatum primer; Elastic profiling mastic; Petrolatum corrosion protection tape; Metal protective outer wrap; Outer-wrap primer and elastomeric finishing layer.

Outcome. The system created a sealed, flexible transition from the lower tank shell to the concrete foundation edge. Following initial use, the solution was recognised for continued application through planned tank maintenance activities.

Project conditions, surface preparation, system components and operating environments vary. A reference demonstrates application experience; it does not replace project-specific technical review or the current product data sheets.

Supporting documents

- Petrolatum Anti-Corrosion Tape – Industrial Grade TDS
- Anti-Corrosion Tape Primer TDS / High-Tack Anti-Corrosion Primer TDS
- High-Performance Elastic Mastic TDS
- Aluminium Foil Outer Wrap Tape TDS
- Test reports CTICAQ4512401550823164BR, CTG2410221378A_SR178AC / SR179AC, CBT30406071071

TECHNICAL & COMMERCIAL CONTACT

Send us your asset information

Send asset photographs, dimensions, operating temperature and exposure conditions. We will return a system configuration, an estimated material quantity and the supporting documents.

- Product and system selection
- Technical data sheets and safety data sheets
- Third-party test reports and certificates
- Installation sequence and application guidance
- Samples, packaging and private-label discussion

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DISCLAIMER

The information in this document is based on Zhuohuang product records, manufacturer data and third-party test reports available at the date of issue. Values are typical or standard configurations and are not universal acceptance limits. Product performance depends on substrate condition, surface preparation, geometry, operating temperature and exposure. Confirm the applicable grade, current packaging, project acceptance criteria and the relevant safety data sheet before order and application.