

Anticorrosion

STEEL TANK REPAIR

TECHNICAL PROBLEMS

Old tanks are affected by corrosion, which can become so severe that the sheet metal is pierced.

It is important to act quickly and remedy these problems, before they render the tanks unusable.

TRADITIONAL SOLUTION

- **for tank bottoms:** A new base is made from welded sheet metal.
- **for pierced sheet metal on the top and sides:** Sheet metal is welded onto the areas which need protection.
- **The drawback:** These long interventions can pose safety risks and require that all the gas in the tanks be completely purged. The installations are then immobilised, often for long periods of time.
- one-off interventions using polyester resin glued to the zones to be repaired are rarely satisfactory. The tank substrate is subject to a range of deformations under the load of the liquid inside and due to temperature fluctuations, meaning that the rigid polyester protection has a hard time following these changes. Cracks will, inevitably, occur.

SOUPLETHANE TECHNIQUE

- **for tank bottoms:**
 - All holes are bridged using a glass fibre canvas substrate (300 g/m²). This fabric is glued in place using SOUPLETHANE UR 5 over the entire substrate, at a thickness from 1.5 to 2 mm according to the condition of the base. This technique can withstand up to 20 bars of pressure.
 - when the condition of the bottom is too poor, it is possible to cast a reinforced concrete slab to reconstitute it. SOUPLETHANE UR 5 is applied once the concrete is cured; it is applied directly to the concrete at a thickness of 3 mm. The coating is then brought up the vertical sides of the tank with a special concrete/steel joint treatment, due to concrete shrinkage. If the concrete cracks under the load variations, the seal will remain intact: SOUPLETHANE UR 5 can bridge cracks of up to 2 mm in concrete.
- **for walls and roofs:**
 - bridge the holes with glass fabric and apply SOUPLETHANE UR 5 onto the fabric to ensure a good seal.
- **The benefits:**
 - the suppleness of SOUPLETHANE UR 5 ensures that these repairs will last. The coating will follow any deformations in the substrate without coming loose or cracking.
- **for riveted tanks:**
 - for these tanks, the rivets must first be covered by a fabric. For large holes, sheet metal can be glued onto SOUPLETHANE UR 5 without needing to be welded.
- SOUPLETHANE UR 5 can then be applied in a continuous layer across the entire tank.
- **The advantages:**
 - these interventions require less time and fewer precautions (cold applied, with no need for solvents).



SPECIFICATION

QUALITY CONTROL

- Sandblasting: SA 2.5.
- Check that there is no dust
- SOUPLETHANE UR 5 coating:
 - Adhesion test: 20 MPa
 - Good film appearance (polymerisation, blisters, etc.)
 - Thickness: check using a microtest
 - Porosity: holiday detector - 3 000 Volts per mm thickness.
- All defects in the coating must be corrected.

TESTS AND CERTIFICATIONS

- Resistance to salt mist: SNCF-Levallois Laboratory – 2 000 h salt mist
- Chemical resistance: Labo SGN, Rhône Poulenc

WORK REFERENCES

- Pont d'Ardres sugar plant
- Hamm sugar plant
- EURODIF - Pierrelatte
- Tanker wagons. Rhône Poulenc