

CASE STUDY / PLASTIC FABRICATION

INSULATED HDPE SODIUM HYDROXIDE TANK

A 20,000 L outdoor chemical storage tank
with insulation and trace heating.

FOR
WATER CORPORATION
WESTERN AUSTRALIA

PROJECT OVERVIEW

Temperature-controlled storage for 50% sodium hydroxide

CLIENT
Water Corporation

PROJECT NUMBER

31849-75056

LOCATION

Western Australia

THE PROJECT

Fusion designed and manufactured a 20,000 L HDPE storage tank for 50% sodium hydroxide, also known as caustic soda. The tank was intended for outdoor installation and atmospheric service, with an average operating temperature of 40°C and a maximum ambient temperature of 60°C.

At this concentration, sodium hydroxide begins to crystallise at low temperatures. If the liquid becomes too cold, crystallisation can interfere with chemical transfer and obstruct outlets or connected pipework. The storage solution therefore required insulation and heating to keep the chemical above its crystallisation temperature during colder weather.

PROJECT DELIVERY

HDPE fabrication with integrated thermal protection

DESIGN CONDITIONS

The tank was designed for 20,000 litres of 50% sodium hydroxide at atmospheric pressure. Fusion applied a liquid design density of 1.5 and a chemical reduction factor of 1.0 in accordance with DVS 2205.

HDPE FABRICATION

The vessel was fabricated from HDPE sheet. Butt welds were completed to DVS 2207-1, while extrusion weld sizes and parameters were specified in accordance with DVS 2205 and DVS 2207-4.

INSULATION & TRACE HEATING

The tank was insulated with 50 mm of polyurethane foam and finished with an elastomeric protective coating for outdoor exposure. Electric trace heating installed at the base and encapsulated within the insulation helps maintain the sodium hydroxide above its crystallisation temperature.



PROJECT PHOTOGRAPHY

Fabricated for reliable outdoor chemical storage



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