Cleaning of tanks interiors

Introduction

Inspection of tanks interiors or change in service must be preceded by proper cleaning of the coated surface for the following reasons:

- allow optimal assessment of the condition of the internal surface of the tank
- act as part of the safety precautions to be taken before entering the tank for inspection
- avoid cross contamination when a different chemical to the previous one is going to be stored

Safety

Use adequate personal safety equipment and follow sound procedures. Apply only in well ventilated areas. Observe safety labels on packaging and paint containers and consult Hempel's Safety Data Sheets for the products to be applied.

Scope

The scope of this Technical Guideline is to provide specific advice on the most common methods to clean interior of lined tanks. These are:

- high pressure fresh water washing
- steam cleaning (most processing plants have steam readily available)

Cleaning methods of tanks interiors

Prior to cleaning, the lining system should have been allowed to cool to ambient if the tank has been in high temperature service. Consult Hempel Protective Technical for specific details regarding the coating service as different service may influence the cleaning protocol.

High Pressure Fresh Water Washing (HPFWW)
In High Pressure Fresh Water Washing (HPFWW) the recommended distance is approximately 50 cm (20") from the surface (close HPFWW may damage the coating). Pressure to be applied differs depending on the type of coating:

Product	Maximum Pressure	Maximum Water Temperature
Hempaline Defend 740	70 MPa (700 bars)	70^{0}C
Hempaline Defend 630/400	70 MPa (700 bars)	50^{0}C
Hempadur 85671/15500	70 MPa (700 bars)	70^{0}C

Table 1. Maximum pressure and temperature for HPFWW for different linings

Steam cleaning
Different coatings show different tolerance to steam cleaning procedures.

- Steam out procedures where steam is input direct to the vessel being cleaned is a common practice. The exposure time and temperature differs between different coating schemes – examples shown below:

Product	Maximum Pressure	Maximum Steam Temperature	Maximum Duration
Hempaline Defend 740	0,2 MPa (2 bar)	120^{0}C	3 hours
Hempaline Defend 630/400	0,2 MPa (2 bar)	120^{0}C	48 hours
Hempadur 85671/15500	0,2 MPa (2 bar)	150°C	48 hours

Table 2. Maximum pressure, steam temperature and duration of steam out procedure for different linings

- Steam lances are appropriate for tank cleaning provided care is taken. Prolonged contact with the lances in one area may damage the coating.

Use of cleaning products
In some cases, high pressure water washing or steam cleaning is not enough to completely remove all residue of certain chemicals, so cleaning products could be considered for this purpose. Before their use, please consult Hempel about the suitability and compatibility with the coating system.

This document is intended for professional use and provides generic advice in respect of the subject matter only. It is not intended to be used as a comprehensive guide. The buyer/applicator should always read the relevant Product Data Sheet ("**PDS**") and Safety Data Sheet ("**SDS**") relating to the Products ordered which are available for download on www.hempel.com. If in doubt, please contact your local Hempel representative for further advice. To the extent relevant, the disclaimer set out in the relevant PDS(s) applies to this document.