

HANDLING & CLEANING GUIDELINES FOR COATED TANK CONTAINERS WITH CHEMLINE 784®

This ISO tank container is internally equipped with a high-performance coating: ChemLINE 784®. To protect the coating from any damages, we strongly recommend following these handling and cleaning precautions.

HANDLING

- Avoid any impact on the inside and outside wall of the tank container.
- Avoid dropping metallic objects like tools into the tank container. It will damage the coating!
- When checking the condition of the internal coating, use a bright lamp and make sure that it is secured - for example with a strap.
- If you observe any damage to the coating, report it immediately so that repair measures can be initiated immediately.
- Persons stepping on the container must wear slip-proof rubber shoes (smooth sole, without inclusions).
- No personnel should enter the tank container.
- If entering the tank container is unavoidable, access ladders or any other equipment for entering must be padded and the worker shall take off his work boots or at least wear soft shoe covers to protect the coating from mechanical damages.
- The worker shall also assure that loose metallic objects like keys and tool are left outside the tank container.
- Welding work inside must always be avoided.

- Porosity tests may only be performed with 1.500 V.
- Make sure to lift and transport the tank container with appropriate equipment.

GENERAL CLEANING GUIDELINES

Please pay attention to the following general guidelines for cleaning tank containers coated with ChemLINE®. These shall be understood as a general guideline.

Practices for cleaning purposes should be limited to the following:

1. Water washing not to exceed 82°C (180°F)
2. Steam cleaning is not recommended and notwithstanding, manual steam cleaning is not permitted. Hot water washing is recommended for best practice (higher efficiency and lower environmental impact).
3. Pressure Water Jetting - Two types: Manual and Rotary Jet
 - a. A maximum washing water pressure of 1500 psi is recommended.
 - b. Needle jets are NOT allowed.
 - c. For manual cleaning, the direction of the washing water stream must be at right angles to the lining.
4. Cleaning Chemicals

The decision to use cleaning chemicals is dependent on the chemical nature and properties of the product carried last in the tank container. Choose one from the four categories: alkaline cleaner, pH neutral surface-active cleaner, solvent cleaner, or weak acid cleaner (typically citric acid based)
5. After washing
 - a. Rinse tank/container with water to remove excess cleaner.
 - b. Drain excess water.
 - c. Force dry/ventilate with air. If hot air is used, the maximum substrate temperature should not exceed 150°C (302°F)
 - d. All surfaces must be visually dry before the next load.

CLEANING TYPES

There are three major types of cleaning that are reviewed below:

Ventilation only: When cleaning from chemicals/products that are volatile under normal operating conditions, any remaining chemical/product in the tank/container and to a much lesser degree retained in the coating, can be removed by forced air ventilation, recognizing that if it is possible to remove all traces of the previous chemical/product by ventilation only, reduces the risk of damaging the ChemLINE® coating through unnecessary contact with cleaning chemicals or excessive washing water temperatures. If the previous chemical/product is flammable, nitrogen purging the tank/container before forced air ventilation is strongly recommended to remove the risk of creating a flammable atmosphere inside the tank/container. If the previous chemical/product is sensitive to moisture, dry air must be used for ventilation.

Water washing / steam cleaning: The most effective method of removing non-volatile chemicals/products that are soluble or partly soluble in water is to clean with water, recognizing that warm/hot water is generally more effective at cleaning than ambient temperature water. Careful attention must always be given to chemicals/products that react in or with water. In some circumstances the tank/container may require prewashing with a non-aqueous solvent before water washing.

Certain manufacturers of tank cleaning machines utilize a live steam feed, that introduces steam into the tank container during any given washing cycle. It should be made clear that steam cleaning is damaging to all organic coatings and should be avoided wherever possible. However, if it is impossible to avoid the introduction of steam during a pre-programmed washing cycle, the introduction of steam into the tank/container should never exceed a pressure of 15psig for a maximum duration of 10 minutes, during the complete washing cycle.

Cleaning chemical washing: Certain chemicals/products are both non-volatile and insoluble in water and will typically require the use of specific cleaning chemicals to completely remove all traces from the tank/container. Before cleaning chemicals are used, the tank/container must always be washed with clean water first, to remove as much of the previous chemical/product as possible, which will optimize the use of the cleaning chemical(s).

There are commonly four main categories of cleaning chemicals that will generally cover all cleaning challenges:

- pH neutral surface active
- Solvent based
- Alkaline based
- Acid based (APC* strongly recommends citric acid-based cleaners ahead of phosphoric acid-based cleaners).

The active ingredient of certain cleaners, including but not limited to, phosphoric acid, sodium hypochlorite, hydrogen peroxide, can potentially damage the surface of all coating types, particularly at elevated temperatures. Please contact us for further guidance if the cleaners being considered for use contain any of the above ingredients, or if the cleaners are branded “Heavy Duty”, “PLUS”, “Oxidizing”, “Concentrate” etc.

Owners should contact the chemical manufacturer to see what their recommendation is for cleaning out a tank container that has carried or stored their product.

Please contact HÜNI + CO (www.hueni.de / info@hueni.de) if you observe any damage to the ChemLINE 784® coating. We will advise you on the necessary next steps.

*APC - Advanced Polymer Coatings (www.adv-polymer.com)