

# INWATEC

INWATEC GmbH & Co. KG

Römerstr. 131-133

D-50127 Bergheim

Tel: 02271-755490

FAX: 02271-6799479

E-Mail: info@inwatec.com

## AQUATOP R-2720

Turbine cleaning products for increased efficiency

### Technical data

Description:	whitish liquid
active components:	- acids
	- substances evenly dissolving
	turbine incrustation
	- substances destroying dense salt crystal
structures	
	- rust inhibitors
pH value:	< 1
Solubility in water:	mixable

## General

**AQUATOP R-2720** dissolves salt and rust incrustation in turbines.

Topping turbines, in which ion slippage from the deioniser unit causes the live steam salts to condense, and condensing turbines, in which the salt residue content of the saturated salt condenses, are especially affected.

The normal practice is to try to clean incrustation by flushing out with ammoniac or saturated steam. However, this process is scarcely effective when iron oxides and carbonates are present.

Turbines have, therefore, to be dismantled, opened up and cleaned mechanically as an alternative to chemical cleaning and idling time costs and the cost of spares are correspondingly high.

The cleaning process with **AQUATOP R-2720** lasts about 30 hours altogether and results in hugely increased efficiency.

## Characteristics

**AQUATOP R-2720** dissolves all current forms of salt, iron and aluminium incrustation slowly and evenly. So even is the dissolution process that in our experience no resulting imbalance occurs.

The inhibitors in **AQUATOP R-2720** effectively prevent rust during cleaning. The presence of fine cracks in the turbine structure does not disrupt the cleaning process since steam treatment phases out the acid substances from **AQUATOP R-2720**, which are, therefore, removed directly by evaporation after the turbine is started up.

Protection is provided for the following metals: iron, steel, stainless steel and copper-based alloys.

The protection provided for zinc, aluminium and aluminium alloys is inadequate and for these metals we recommend **AQUATOP R-2721**.

## Application

Prior to cleaning, a list of measures is prepared individually by INWATEC. Turbine drawings, particulars of metals used and a knowledge of control circuits during normal turbine operation are also required.

Cleaning is carried out at an INWATEC delivery station by INWATEC engineers.

For the purposes of cleaning, the turbine is shortcircuited, i.e. the cleaning solution, consisting of **AQUATOP R-2720** and deionised water, is conveyed to the steam admission pipe and flows through the turbine back, via a steam outflow pipe, to the delivery station. The corresponding controls and instruments are de-rated so as to allow the cleaning solution to fill the turbine completely.

Since the turbine has to turn while it is being cleaned, a suitable arrangement allowing it to do so is an urgent requirement.

Forced air must be applied to stuffing boxes in order to prevent the cleaning solution from leaking through them.

An INWATEC engineer will conduct regular analyses during cleaning in order to determine that the operation has been completed.

After cleaning, the turbine is flushed down with deionised water while still running, until the waste water salt content falls below the established limit.

## Storage

**AQUATOP R-2720** may be stored for at least 1 year in the original sealed containers. It should be protected against frost.

## Packaging

- 1000 kg containers
- Tank wagons

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