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Title

**SPECIFICATION FOR CLEANING AGENTS AND WATER QUALITY USED FOR OFF-LINE CLEANING OF COMPRESSOR**

**References to other documents**

1 GENERAL

This standard specifies the properties of the cleaning agent and water used for off-line cleaning of gas turbine compressor. Siemens Industrial Turbomachinery AB recommends the use of water based products. Only for persistent organic deposits, an organic solvent based solution may be applied. The recommendations of the supplier for proper dosage and waste treatment shall be followed.

2 SAFETY REQUIREMENTS

The cleaner product shall not contain toxic ingredients and must be fully biodegradable in accordance to OECD-302B. Further, it shall not require to be treated as hazardous waste. The Flash Point (Pensky-Martens) of the cleaner shall be above 60 °C.

3 STORAGE

The cleaning agent shall be storable in original containers as per recommendation of manufacturer. The shelf life shall be at least 18 months without product property changes.

4 LOW TEMPERATURE SERVICEABILITY

The cleaner product shall show no separation, layering or precipitation when mixed with water according to manufacturer's recommendation. Furthermore, the cleaner shall be compatible and applicable with propylene glycol.

5 REQUIRED PROPERTIES AND PURITY OF CLEANING AGENT

The cleaning agent in its pure state must satisfy the requirements stipulated in table 1. A ready to use solution (cleaning agent + water) shall comply with the specification stipulated in table 2.

Table 1: Specification for pure cleaner product

Total alkali metal	ppm, max.	25
Magnesium plus Calcium	ppm, max.	5
Vanadium plus Lead	ppm, max.	1
Other Metals	ppm, max.	1
Sulfur	ppm, max.	50
Chlorine	ppm, max.	40
Ash content	ppm, max.	100

No organometallic compounds (soaps etc.) nor caustic soda nor nonylphenyl type of detergents (non biodegradable) are allowed.

Table 2: Specification for water and detergent solution, ready to use

Property	Unit	OFF-LINE
Sodium plus Potassium	ppm, max	25
Heavy metals	ppm, max.	1
Total dissolved solids (TDS)	ppm, max.	500
pH value		6,5-8,0

In addition, the detergent solution:

- may not contain undissolved solids,
- must be removable by water,
- must not form sticky surfaces after rinsing with water,
- must meet immersion corrosion test requirements according to US military specification MIL-C-85704 B.

If organic solvents are used any formed emulsion must be breakable in order to make it possible to separate the organic part of the wastewater in an oil separator.

6 REQUIRED WATER QUALITY

The quality of the water, used for rinsing, washing and for dilution of cleaning agent, is specified in GT1 W 220027E (1CS26747).

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