SurTec® 876 IAT

Ion Exchanger

Ion Exchange Resin for Recycling of the Electrolyte SurTec 876

Properties

- removes selectively iron impurities from the trivalent chromium electrolyte SurTec 876
- regenerative ion exchange resin
- recycling of the chromium electrolyte in bypass installation will not disturb the chromium deposition

Application

temperature:	0-50°C
pH-value:	< 6
capacity:	up to 14 g iron per litre ion exchange resin
column depth:	800-1200 mm
linear speed of loading:	max. 10 m/h
regenerant:	30 %vol (20-45 %vol) of a 31-33 % hydrochloric acid = 300 ml/l (200-450 ml/l) of a 31-33 % hydrochloric acid
amount of regenerant:	3-5 times of the resin volume
linear speed of regeneration:	3-5 m/h
rinsing:	tap water (not too hard) or deionised water; adjust the pH-value of the water to pH 2-4 with hydrochloric acid
amount of rinsing water:	2-4 times of the resin volume
speed of rinsing:	5 m/h
change of volume:	approx. 3 %
expansion space:	10 % of the resin coating height Due to the resin expansion, this expansion space necessarily has to be left free!
hints:	The resin can be used without any preconditioning. To rinse the chromium solution from the resin prior to regeneration, water can be used, adjusted to pH 2 with hydrochloric acid. The same water can be used to rinse the regenerant from the resin. Usually the hydrochloric acid can be used several times for regeneration.

Technical Specification

(at 20°C)	Appearance	Density (g/ml)	pH-value
Appearance	pearls/granulate, yellow-beige	0.643 (0.54-0.74)	-

Maintenance

In case the capacity is worn, regenerate with 30 %vol (= 300 ml/l) of a 31-33 % hydrochloric acid:
For an ion exchange cartridge of 300 l, normally 600 l of a 30 %vol of 31-33 % hydrochloric acid (= 300 ml/l of a 31-33 % hydrochloric acid) are necessary. The acid can be used 3-5 times in cycle and is able to absorb at least 30 g/l iron without a loss of quality in the regeneration. The resin can absorb approx. 14 g/l iron, so the acid can be used at least 2 times for regeneration.

Pollutions of the ion exchange resin may occur, which cannot be removed by regeneration. However, the resin firstly has to be treated with hydrochloric acid as described above. Please test the following methods for cleaning a polluted resin firstly in a beaker.

Copper Impurities

Copper ions bound the active groups of the ion exchange resin irreversible. The resin colour changes to blue.

Remedy: The copper only can be removed with a 30-50 % ammonia solution. The resin should contact this alkaline solution as short as possible to prevent destruction.

After this special regeneration step, the resin has to be washed intensively with deionised water.

Organic Impurities

Organic compounds or an excess of wetting agent also can inactivate the ion exchange resin.

Remedy: In order to remove the organic pollution, a treatment of 50 % methanol for 1 hour is necessary. The electrolyte should be treated meanwhile with active carbon to prevent a further pollution of the resin.

After this regeneration step, the resin has also to be washed intensively with deionised water.

Product Safety and Ecology

The safety instructions and the instructions for environmental protection have to be followed in order to avoid hazards for people and environment. The Material Safety Data Sheets (according to European legislation) contain explicit details for this.

The following hazard designations and classifications into water hazard classes (WHC) have to be taken into account:

product	*hazard designation*	*water hazard class*
SurTec 876 IAT	-	WHC 1

Warranty

We are responsible for our products in the context of the valid legal regulations. The warranty exclusively accesses for the delivered state of a product. Warranties and claims for damages after the subsequent treatment of our products do not exist. For details please consider our general terms and conditions.

Further Information and Contact

In our forum, you can discuss topics of the surface technology:
http://forum.SurTec.com/

If you have any questions concerning the process, please contact your local technical department: http://SurTec.com/International.html

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Annex: Installation of the Ion Exchange

The installation of two ion exchange cartridges is preferable for continuous lines, where one cartridge is on run and the other can be regenerated. If the Chromiting bath is not in continuous use, one ion exchange cartridge is enough.