Technical Bulletin

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CLEANING OF COOLERS AND FILTERS

Why coolers and filters have to be cleaned from time to time is generally well understood; For coolers, or for heat exchangers in general, deposits of dirt result in reduced heat transmission and hence reduced efficiency. Filters will in time become blocked resulting in increased resistance and pressure loss. Meters measuring pressure loss can indicate whether a filter needs to be cleaned. For compressed air filters the pressure loss can be expressed directly as a loss of compressor capacity (~7% per bar pressure loss) and hence in extra costs. Other reasons for cleaning are for example hygiene in the case of microbiological fouling or safety in the case of organic pollution with an oxygen-rich process.

There are for cleaning coolers and filters a number of cleaning options. The choice of cleaning option will depend on the type of material from which they are made, the pollution and what is being filtered or cooled on the one hand and what is being warmed on the other. The cleaning is a process of one or more stages with alkaline, neutral or acid chemical media. Not only the type of cooler or filter but also the application determines which of the four cleaning options is the most suitable.

Chemical cleaning: for the chemical removal of process pollution.
- Air coolers of motors, both air and water circuit
- Panel coolers and heaters
- Oil-water coolers
- Water-water coolers
- Heaters

Ultrasonic cleaning: for the chemical removal of process pollution with support from ultrasonic waves designed to vibrate pollution (especially grease and soot) loose. This type of cleaning is intended particularly for structures with relatively small internal distances of separation.
- Air coolers with lamella, only the air circuit
- Radiators, only the air circuit
- Candle filters
- Boll & Kirch filters
- Air filters
- Extraction installation filters
- Fuel filters
- Lubricating oil filters
- Hydraulic filters
- Flame extinguishers

Heatexchanger before and after cleaning

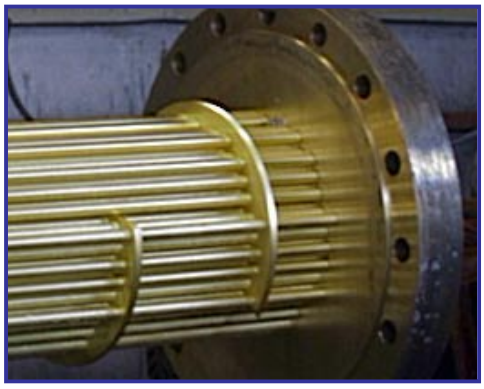
Process preparation cleaning: a chemical treatment for metal surfaces for new coolers and filters. The metal surface treatment comprises, depending on the type of material, several steps including degreasing, pickling, passivation, phosphating or otherwise conserving.

Pure oxygen cleaning:

Systems for pure oxygen applications require the total absence of organic contamination (oil, grease, fingerprints etc.). Even the tiniest traces of contamination may result in spontaneous combustion (that is explosion). Cleaning of pipes, heat exchangers, air coolers etc. for pure oxygen application requires a high level of purity on the part of the cleaning products and rinse water. Vecom has years of experience with cleaning for pure oxygen application of a variety of metals and in this meets the specifications of all leading international companies.

Apart from the cleaning procedure (mainly ultrasonic cleaning) the inspection of treated material is also of essential importance. Final inspection may be carried out with UV light, a wipe test or an evaporation test with chemically pure solvent designed to confirm that all organic contamination has been removed. For each cleaning for pure oxygen or ultraclean application our laboratory prepares a final inspection certificate.

After cleaning and inspection parts treated are carefully packed according to special procedures designed to ensure that the material treated cannot become contaminated during transport and handling.



Brass cooler before and after cleaning

With these techniques Vecom is able to clean practically every cooler and filter for every conceivable application and when required supply treated material with all certificates required.

Author: Dr.Ir.Ing. Maja Keijzer (Technical Manager)
Reactions and/or questions: e-mail: tb@vecom.nl or telephone: +31 (0)10-5930299