



BOC at your service (Oct 2007)

As the UK's largest refrigerants repacker, BOC Refrigerants provides the widest possible range of refrigerants in package sizes from laboratory samples to 15 tonne bulk deliveries, but it is through its growing services offering that it truly lives up to its promise, to keep UK businesses running at the right temperature. ACR Today visited BOC's plant in Immingham to find out more.



Located on a 90 acre site close to the banks of the Humber, BOC's Speciality Gases Facility at Immingham is home to the company's refrigerant storage and packing plant and is the base for the recently formed Refrigerant Services division. Opened by Queen Elizabeth II in May 1993, the site has benefited from considerable investment from the BOC Group and now from parent company

Linde, to make it the most advanced facility of its kind in Europe.

Safety is paramount, for the protection of its staff, its visitors and the environment, as up to 120,000 cylinders every year are dispatched nationwide, containing fluorocarbons, hydrocarbons, ammonia and CO₂.

AN ENVIRONMENTAL ISSUE

Refrigeration plant owners and maintenance contractors must today consider not only the impact of the chosen refrigerant may have on the environment if it leaks to atmosphere but also the total cost of running the plant in both monetary and environmental terms. BOC Refrigerants, in conjunction with leading US refrigeration technology company Hudson Technologies, has developed a set of exclusive services for the refrigeration industry, to help plant owners and contractors to ensure their refrigeration plant operates as close as possible to its design parameters.

SYSTEM EVALUATION

Located at this site are BOC's highly specialized laboratories for the analysis of oil and refrigerant samples, either for troubleshooting or as part of a routine maintenance plan, to validate system performance and identify potential problems. Just as a haematologist might take a blood sample to look for problems in any one of the body's vital organs, so refrigerant holds the evidence of system deterioration or breakdown in the mechanical hardware. The typical range of problems likely to be



identified in BOC's laboratories include burn out contamination, excess oil, excess noncondensables, excess moisture, rust and chemical contamination.

SYSTEM RECTIFICATION

Send for the ZugiBeast! Following evaluation, BOC can bring its patented, self contained, compact, portable, highspeed decontamination equipment – or ZugiBeast for short – for onsite refrigerant cleansing. BOC recently stripped oil contamination from the RGLP refrigeration plant at BP, Grangemouth, using the ZugiBeast. An excessive oil build up over many years had resulted in a significant reduction in capacity and efficiency, resulting in increased energy consumption. BOC's technicians arrived on site with the ZugiBeast, vessels and high speed dryers in order to carry out refrigerant rectification. The ZugiBeast, which is slightly larger than a washing machine was set up next to the refrigeration unit and once connected, refrigerant was cleaned at a rate in excess of 2000 kg/hr. In all, BOC's equipment removed a total of 200 litres of oil from the system. In fact, refrigerant rectification can separate out oil, remove moisture, non-condensables and any other potentially damaging particulates then restore the refrigerant and oil levels to their optimum.

ONGOING PROCESS MONITORING

Once rectification has been completed, BOC can undertake a series of regular post-operative health checks and can use their patented software to capture periodic or real time performance data, which is then fed through to the BOC Customer Control Centre. Periodic fluid analysis is produced in different formats of diagnostic reporting, to highlight any remedial action as soon as the performance levels warrant it.

ON-SITE RECOVERY

BOC is able to bring its compact, high speed, refrigerant recovery equipment directly to site, to recover refrigerant up to ten times faster than standard recovery equipment, ideal for system de-commissioning, de-gassing for routine maintenance, emergency maintenance or gas changes.

WASTE RECOVERY AND RECYCLING

Whether recovered from site by BOC technicians or brought to BOC's plant in cylinders of all sizes, waste refrigerant is analysed carefully, to determine whether it can be safely and effectively recycled or sent for incineration. As an indication of the size of this operation, between May 2006 and June 2007, BOC handled 440 tonnes of waste refrigerant. Of this, 245 tonnes were received from refrigeration and air conditioning equipment salvage sites or "fridge bashers". All of this refrigerant was sent for incineration. 195 tonnes were received from other sources/channels, of which 75 tonnes was sent for incineration and 120 tonnes recycled for re-use. Currently, BOC has no way of separating cross contaminated refrigerants, so mixed refrigerants have to be incinerated. As 2010 approaches, the rising cost of R22 and its



increasingly limited availability as virgin refrigerant may prompt contractors to store recovered R22 separately, to enable more successful recycling. New waste regulations came into force in July 2005. Premises in England & Wales that produce waste must be registered with the Environment Agency (EA) as producers (applies to all waste). Companies that move, hold or store waste must be licensed. Details of the waste must travel with the waste. Companies processing waste must report their activities to the EA and any company accepting waste must report back to the producer of the waste as to what was done with it i.e. recycled or destroyed. Premises in Scotland and Northern Ireland do not need to be registered to produce waste, but they must use the relevant waste transfer notes (SEPA or EHS) to move waste.

BOC REFRIGERATION: THE FACTS

Volume:

- 120,000 cylinders per year
- 2,000 tonnes of refrigerant
- Approx. 1% CO₂, 10% NH₃, 10% HC, rem. HFC

Turnover:

- £10.5M pa from an est. £40M UK market

Customers:

- 15,000 customers
- 66% contractors, 32% end users, 2% automotive

Contact the BOC refrigerants team on 0800 02 0800