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Testing times with new refrigerant

Temperzone was at the forefront of the move to the new, environmentally friendly R-410A refrigerant. Unlike the earlier R-22 refrigerant, R-410A doesn't contribute to ozone depletion. But its adoption didn't come with some challenges, says Temperzone's General Manager in Australia, John Barlow.

One of the best remembered laws of physics from everyone's school days is Newton's Third Law. 'For every action, there is an equal but opposite reaction'. This law might not literally apply to leak testing with R-410A refrigerant, but there's no doubt that air conditioning companies have had to react to the introduction of the new R-410A gas in various ways.

John Barlow says that leak testing methodology is a typical example. "We had to rethink the way we tested for leakage with the new refrigerant," says John, "because the old methods simply didn't tell us what we wanted to know. You could use the traditional means of pressure testing under water and get a perfect result – yet the reality was that the leak in fact existed."

IT'S IN THE PHYSICS

The reasons lie in the underlying physics of the R-410A molecule. The R-410A atom is considerably smaller than the R-22 atom. John continues,

"In line with Temperzone's commitment to quality, in October 2009 we upgraded our leak detection process from pressure testing to a new alternative Hydrogen sensing technology."

John Barlow says that the new leak testing protocol is similar to the electronic trace element testing used by airlines searching for fuel leaks on aircraft. "Being the smallest atom, Hydrogen makes an excellent tracer gas," he says. "It is transported very quickly in any atmosphere, which allows for faster leak detection."

A SAFE OPTION

Naturally, the safety of testing procedures is paramount to Temperzone. John says that at concentrations of less than 5%, Hydrogen is renewable, non-poisonous and perfectly safe. The concentration used by Temperzone is a 5%Hydrogen / 95% Nitrogen gas mixture, which is available as standard mixture in Australia – so it's both effective and practical.

In fact, the technology has been well-tested overseas and is, as it happens, the process used by Hitachi in its Malaysian, Chinese and Japanese factories.

"The bottom line for Temperzone customers," says John, "is that whether it carries the Temperzone or Hitachi brand name, our customers can be reassured that the very best leak testing technology for R-410A refrigerant has been used buy its manufacturer."