REFRIGERANTS CAN BE COUNTERFEIT!

HOW TO IDENTIFY POTENTIAL COUNTERFEIT REFRIGERANTS

Labelling - lower or upper case
- ‘a’ ‘b’ for single refrigerant, indicates chemical composition (R-134a, R-600a, R-141b, etc.)
- Specific blend: R-134a, R-407c, R-22a, R-134a, R-600a

Brand names
- Dupont is not DuPont™
- Anywell is not Honeywell
- Genatron is not Genetron®

Shall follow AHRI guidelines*
- R-22 is light green
- R-134a is light sky blue
- R-404A is orange/ R-410A is rose

General appearance of cylinders
- Scraped
- Repainted - spoiled-damaged
- Out of standard dimension

Misleading advertisements
- R-500a: Non-flammable
- R-134a or R-600a: Replace for R-134 or R-600 Non-standard

HOW TO STOP COUNTERFEIT REFRIGERANTS

Check the cylinder: UN number, CAS number, ASHRAE number, general appearance, colour, labels and specifications

If possible, test the refrigerant

Report the counterfeit refrigerants / supplier to the relevant authorities, including enforcement agencies, refrigeration service technicians association

Do not accept counterfeit: no demand, no offer!

Public awareness, spread the word

Law enforcement

Policy and standards

If available, review your National Ozone Unit database

www.unido.org/MontrealProtocol

*AHRI guidelines N2014

Counterfeit refrigerant cylinders could contain:
- Refrigerant R-415B: HCFC-22/HFC-152a (25%/75%)
- Blends of recovered refrigerants - blend of hydrocarbon
- Blend of R-134a - R-40; expanded R-134a; any other blend
- Any blend of gases, including hydrocarbons

It is time to put an end to counterfeits.
WHAT ARE COUNTERFEIT REFRIGERANTS?

Potentially fatal/corrosive cocktails of gases
Mixture of recovered refrigerants including a range of blends
Pure refrigerants expanded in volume with R-40*
Mixture of R-40 with R-22 and R-142b to emulate the operational characteristics of R-134a or others

Consequences of counterfeit refrigerants

Sources

New refrigerant in cylinders
In manufactured equipment
importers are most likely unaware of counterfeit products
mainly imported in cans and disposable cylinders
equipment producers unaware that refrigerant used is counterfeit
importers unaware that refrigerant in the equipment is counterfeit

WHY ARE THEY SO WIDELY AVAILABLE?

- Good business: low investment, high profit
- Difficult to track and prosecute
- Lack of awareness
- Attractive due to low price
- Difficult to verify the authenticity

HOW TO RECOGNIZE GENUINE REFRIGERANTS

TOP TIPS:

Manufacturer name
Chemical name
Disposable container
United Nations number
CAS number
Trade name
ASHRAE* refrigerant number
Pictogram used in the transport of dangerous goods (packaging)
Hazard class number
Net weight
Country of origin

ASHRAE* - Refrigerant Container Colour

* American Society of Heating, Refrigerating and Air-Conditioning Engineers
** Air-Conditioning, Heating, and Refrigeration Institute

Consequences of counterfeit refrigerants

ENVIRONMENT
- Could be released into the atmosphere by malfunctioning equipment contributing to global warming and ozone depletion
- Disposable cylinders:
  - Not all of the refrigerant can be extracted
  - Are not recycled
- High energy consumption, indirect CO$_2$ emissions
- Higher refrigerant consumption due to (potential) recharge

COSTS
- Attractive price but less efficient and higher risk of mechanical breakdowns
- Unreliable, the job may have to be repeated
- Loss of credibility and jobs
- Additional services may be required

EQUIPMENT
- Higher energy consumption
- Reduced efficiency
- Potential higher leak rate
- Components damaged
- Reduced lifespan

HEALTH
- Can be toxic
- Can be flammable
- Can be explosive
- Global warming / ozone depleting gases can have health impact e.g. skin cancer, eye cataracts

Case study
Brand new 12,000 BTU split ACs and 5.9 amp. were compared as follows:

AC1: R-22 original - Results: 5.3 amp; efficiency 8.96 BTU/h.
AC2: R-22 counterfeit (85% R-409A + 15% air) - Results: AC2: 9.1 amp; efficiency 6.2 BTU/h.

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