

## HOW TO IDENTIFY POTENTIAL COUNTERFEIT REFRIGERANTS



### Labelling - lower or upper case

- > 'a', 'b' For single refrigerant, indicate chemical composition (R-134a, R-600a, R-141b, etc.)
- > 'A', 'B', 'C' indicates blends (R-404A, R-410B, R-407C)
- > **Nonstandard: R-134A, R-407a, R-22a, R-22A, R-600 o R-600A**



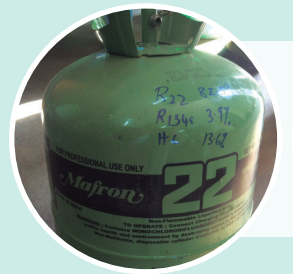
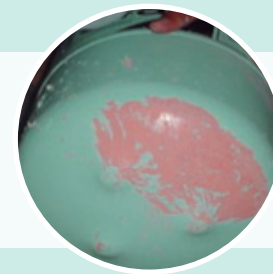
### Brand names

- > **Dupont** is not DuPont™
- > **Anywell** is not Honeywell
- > **Genatron** is not Genetron®



### General appearance of cylinders

- > Scraped
- > Repainted - spoiled-damaged
- > Out of standard dimension



### Shall follow AHRI guidelines\*

- > R-22 is light green
- > R-134a is light sky blue
- > R-404A is orange/ 410A is rose

### Misleading advertisements

- > R-600a **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](http://www.unido.org/MontrealProtocol)

## REFRIGERANTS CAN BE COUNTERFEIT!



### 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.



UNITED NATIONS  
INDUSTRIAL DEVELOPMENT ORGANIZATION



# WHAT ARE COUNTERFEIT REFRIGERANTS?

Potentially fatal/corrosive cocktails of gases

Pure refrigerants expanded in volume with R-40\*

Mixture of recovered refrigerants including a range of blends

Mixture of R-40 with R-22 and R-142b to emulate the operational characteristics of R-134a or others

## Sources

### New refrigerant in cylinders

- importers are most likely unaware of counterfeit products
- mainly imported in cans and disposable cylinders

### In manufactured equipment

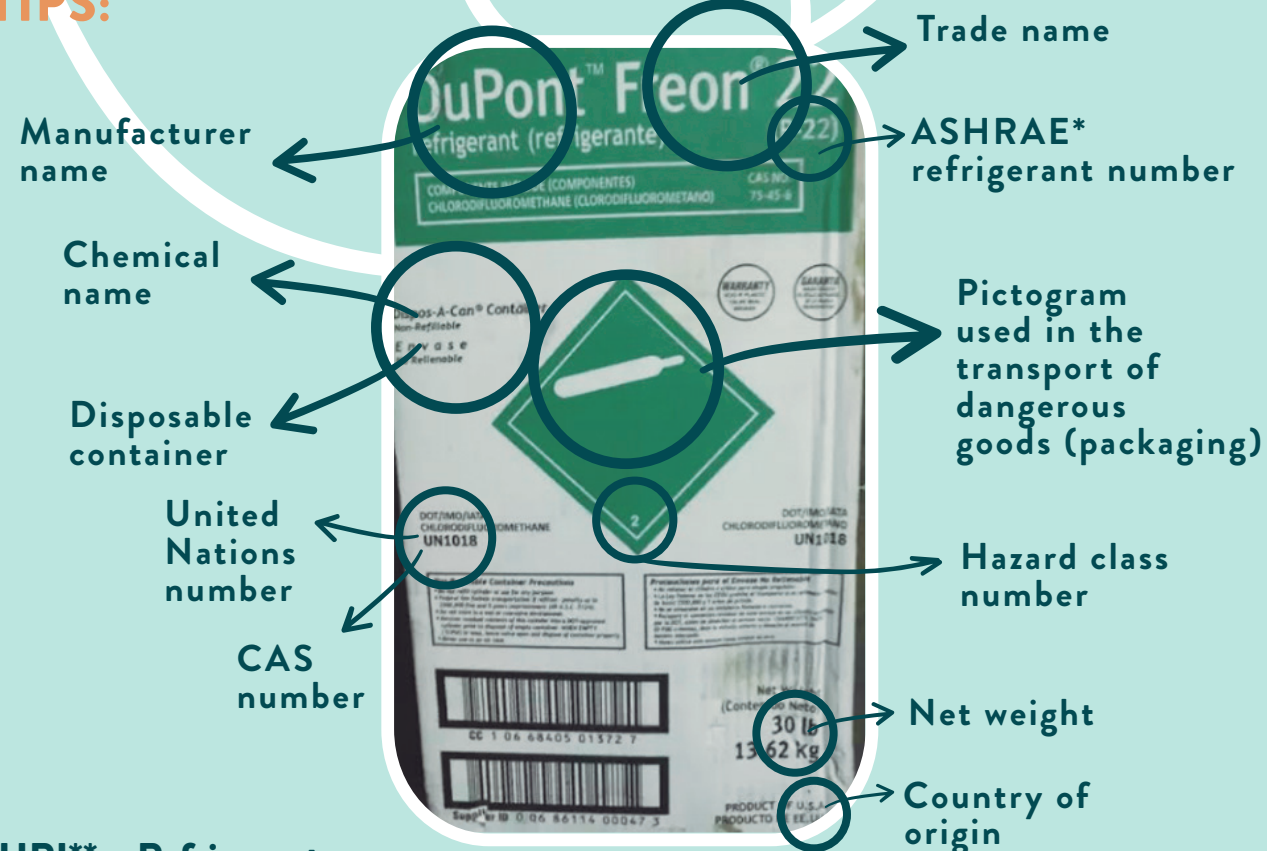
- equipment producers unaware that refrigerant used is counterfeit
- importers unaware that refrigerant in the equipment is counterfeit

## 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

\*R-40 (Not a refrigerant): Methyl Chloride or Chloromethane (CM). Colourless, sweet smell, toxic and flammable gas.

## HOW TO RECOGNIZE GENUINE REFRIGERANTS TOP TIPS:



### AHRI\*\* – Refrigerant Container Colour



### Refrigerant Identifier



\* 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<sub>2</sub> emissions
- Higher refrigerant consumption due to (potential) recharge

### 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.

### 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