Retrofit Aircon

— The straight answer on refrigerant safety

The flammability myth, busted.

The most common question people ask before a hydrocarbon retrofit is some version of the same thing: *isn't the new gas more flammable?* Here's the honest answer.

All air conditioning refrigerants can burn.

This is the part of the conversation that often goes unsaid: every refrigerant inside an air conditioner — chemical or natural — sits in a closed system mixed with compressor oil. If a leak develops near a heat or ignition source, what burns first is the *oil*, not the refrigerant. Oil has a much lower auto-ignition temperature than either type of refrigerant.

The "flammability" discussion often gets framed as if one type of refrigerant is safe and the other isn't. The reality is that the international dangerous-goods classification system rates them similarly: R32, the modern synthetic refrigerant in many new air conditioners, carries the same flammable-gas classification (Class 2.1) as natural hydrocarbon refrigerants. They're in the same regulatory bucket.

What happens if hydrocarbon refrigerant burns?

If a leak ignites, hydrocarbon refrigerant burns to **carbon dioxide and water vapour**. The same products as a household gas stovetop. Non-toxic. Not harmful to the environment.

If a leak in a synthetic chemical refrigerant ignites, the combustion products include **highly toxic fluorinated compounds** — including hydrogen fluoride, a corrosive and dangerous gas. Bad for the people nearby, bad for the environment. This is one of the reasons synthetic chemical refrigerants are being progressively phased out worldwide.

Refrigerant comparison

Property	R134a	R410a	R32	Hydrocarbon
Type	Synthetic	Synthetic	Synthetic	**Natural**
Ozone depletion (ODP)	0	0	0	**0**
Global warming (GWP)	1,300	2,100	675	**~3**
Flammability class	A1	A1	A2L	**A3**
Combustion by-products	Toxic HF	Toxic HF	Toxic HF	**CO_2 + H_2O**
Atmospheric lifetime	14 yrs	N/A	5 yrs	**< 1 yr**

Values shown are widely-published reference figures. Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) are dimensionless indices used by the UN Environment Programme. Flammability class follows the ASHRAE 34 / ISO 817 system.

Hydrocarbons in everyday life

Natural hydrocarbon gases — propane, isobutane, and blends — are already part of daily life in Australia and worldwide. We trust them in plenty of higher-risk settings than a sealed air conditioning system:

• **Cooking gas**. LPG (a blend of propane and butane) powers millions of household and restaurant kitchens.

• **Hot water systems & home heating**. Gas heaters and storage tanks run on the same family of gases.

• **Camping & barbecues**. The standard 9 kg gas bottle on the back patio.

• **Aerosols**. Hydrocarbon propellants drive deodorant, fly spray, hairspray, cooking spray.

• **Cars and transport**. LPG-powered vehicles and refrigerated transport.

• **Household fridges & freezers**. Most new domestic refrigerators sold today already use hydrocarbon refrigerant (R600a). It's been the default for over a decade.

If hydrocarbons are safe enough to cook with, heat with, and store next to the house — they're safe enough to cool with, provided the install is done properly.

How we engineer safety into every retrofit

The safety of any refrigerant retrofit comes from the quality of the install, not the identity of the gas. Every job we carry out includes:

Thermal imaging (IR) scan. We scan the system for hot spots before any work begins. A hot spot can indicate electrical faults or component wear that need addressing first.

Leak detection. We test the existing system for leaks before we charge anything new. If the system isn't holding pressure, we tell you and stop work.

Pressure testing. After the retrofit, we pressure-test the system again to confirm it's holding before sign-off.

Licensed technicians only. Every retrofit is carried out by a licensed refrigeration technician. Fully insured. We stand behind every job.

We say no when we should. If a system isn't suitable for a retrofit — for safety, age, or economic reasons — we tell you up front. We don't sell jobs that don't make sense.

The bottom line

Natural hydrocarbon refrigerants are not riskier than the synthetic chemical refrigerants currently sitting inside most Australian air conditioners. They're classified in the same flammability category as modern synthetics like R32. They burn cleaner if they ever burn at all. And they're already running safely inside millions of fridges, freezers, supermarkets, mines, hotels, and homes worldwide.

If you have questions about safety, ask us — honestly answering them is part of what the free system check is for.

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