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Executive Summary: Refrigerant Use in Industrial Process Air Conditioning (IPAC) Cabinets and Chiller

Purpose

This document explains why the continued use of the refrigerant **R513A** in Industrial Air Conditioners for electronic enclosures and chillers remains necessary, safe, and compliant with European Union requirements from 2027 and beyond.

Key takeaway

The continued use of R513A in Industrial Air Conditioners used on electronic enclosures and chillers in 2027 and beyond is justified, necessary, and aligned with EU regulatory and safety objectives.

Regulatory context

The EU F Gas Regulation (EU) 2024/573 restricts the use of industrial air conditioning and chillers containing refrigerants with a Global Warming Potential (GWP) of 150 or higher after **1 January 2027** in the EU market. The regulation explicitly allows exemptions where a refrigerant above 150 GWP is required to meet safety requirements. In that situation, the GWP limit is 750.

Why Industrial Air Conditioners for enclosures and chillers requires a non flammable refrigerant

Industrial Air Conditioners are self contained cooling systems installed in close proximity to electrical and electronic equipment that is installed within an electronic enclosure. These enclosures inherently contain potential ignition sources due to the electronics within them and the fact that they are sealed. The chillers are installed in close proximity of potential ignition sources.

As a result:

- **Flammable refrigerants (A2L or A3)** introduce fire and explosion risks.
- Leakage into electrical compartments cannot be fully prevented.
- Even extensive redesign cannot eliminate all critical safety hazards.

Compliance with safety standards

Industrial Air Conditioners and chillers using R513A fully comply with applicable European safety standards, including:

- **EN 378** (Refrigeration safety and environmental requirements) [Industrial Air Conditioners and Chillers]
- **EN 60335 2 40** (Product safety for electrically driven air conditioning equipment) [Industrial Air Conditioners]
- **EN 60204-1:2018** (Electrical equipment of machines) [Chillers]

Independent safety assessments

Independent, third party assessments confirm that:

- Flammable refrigerants in Industrial Air Conditioners for electronic enclosures and chillers could introduce critical and safety risks.
- Electrical components could act as ignition sources in the event of refrigerant leakage.

Conclusion

Industrial Air Conditioners and chillers using R513A (which has a GWP well below the 750 limit) provide a **safe, reliable, and energy efficient** refrigerant solution. The continued use of R513A is **an viable option to meet mandatory safety requirements** and is consistent with the safety exemption allowed under the EU F Gas Regulation.