



Analysis

Refrigerant Analysis

INTRODUCTION

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Checking that the physical and chemical characteristics of refrigerants comply with the specifications defined by the standards allows you to validate their nature and quality.

The diversity of refrigerants used considerably increases the risk of mixtures, creating regulatory non-compliance, mechanical failures, performance defects, difficulties in controls and adjustments and risks for the safety of use and installations.

PERFORMANCES

The criteria analysed make it possible to detect dangerous chemical or thermodynamic incompatibilities for an installation, to diagnose the causes of a malfunction and to prevent or confirm doubts about the quality of a fluid in service or in storage.

This analysis will fit perfectly into your contracts in order to secure them by avoiding mechanical damage or costly production downtime.



ANALYSIS RANGE

Ref.	Analysis	Applicable for
778	<p>Identification / purity (Gas Phase Chromatography)</p> <p>Identifies the refrigerant and indicates the purity of the sample. Indicates the presence of impurities without quantifying them.</p> <p>Allows the detection of undesirable molecules and the verification of the compliance of the physical-chemical properties of the refrigerant.</p>	<p>Pure substance ¹</p> <p>CFC – HCFC – HFC – HFO</p>
779	<p>Composition (Gas Phase Chromatography)</p> <p>Checks the composition of the fluid and reports impurities in the sample.</p> <p>Quantifies in percentage terms the undesirable molecules.</p> <p>Validates that the mixture conforms or does not conform to the composition and physical-chemical properties of the original fluid.</p>	<p>Blends ²</p> <p>CFC – HCFC – HFC -HFC/HFO – HFO</p>
772	<p>Water content of liquefied gas (Karl Fischer method)</p> <p>Measures the water content of the liquid phase of the refrigerant (ppm).</p> <p>Checks that the value is in accordance with the original specification and compatible with the correct function of the installation or confirms a cause for the malfunctioning of the installation.</p>	CFC – HCFC – HFC – HFO
775	<p>Oil residue or content</p> <p>Measures the oil content of the liquid phase of a refrigerant (ppm and /or %weight).</p>	CFC – HCFC – HFC – HFO
770	<p>Acid rate for liquefied gas</p> <p>Measures the acidity of the liquid phase of the refrigerant (mgK OH/g of the product).</p> <p>Checks the value is in accordance with the original specifications and compatible with the proper function of the installation. Confirming the cause of malfunction found or suspected on the installations. Identifying the contamination.</p>	CFC – HCFC – HFC – HFO
776	<p>Non-condensable gases (Gas Phase Chromatography)</p> <p>Measures non-condensable gases in the GASEOUS PHASE (mandatory) of the refrigerant fluid (% vol).</p> <p>Verification of the grade compliance with the original specification and proper function of the installation or safety features.</p>	<p>CFC – HCFC – HFC – HFO</p> <p>Caution: Sampling only on the gaseous phase. There must be no liquid in the bottle.</p>
777	<p>Water/oil content of ammonia</p> <p>Measures the water and oil content of ammonia (ppm and/or % volume).</p> <p>Verifies compliance with the original specifications</p>	Specific NH ₃
5888	<p>Liquid analysis package (based on 778 analysis)</p> <p>Includes identification/purity, water content, oil content, acidity, appearance.</p>	<p>CFC – HCFC – HFC – HFO</p> <p>Only low pressure refrigerants ³</p>
5889	<p>Liquid gas analysis package (based on 778 analysis)</p> <p>Includes identification, water content, oil content, acidity, appearance.</p>	<p>CFC – HCFC – HFC – HFO</p> <p>Except low pressure refrigerants ³</p>
5890	<p>Liquid gas analysis package with composition (based on 779 analysis)</p> <p>Includes composition, water content, oil content, acidity, appearance.</p>	<p>CFC – HCFC – HFC – HFO</p> <p>Except low pressure refrigerants ³</p>



Analysis

Sampling bottles must be selected and adapted to the refrigerants fluids to be analysed.

Type	Refrigerant				Suitable Sample Bottle
Pure Fluids ¹	R-11	R-123	R-142b	R-227ea	Medium Pressure
	R-12	R-124	R-143a	R-236fa	
R-113	R-125	R-152a	R-245fa		
R-114	R-134a	R-22	R-1233zd		
R-115	R-141b	R-32	R-1234ze		
	R-13	R-23			High Pressure
Blends ²	R-401A	R-409B	R-438A	Isceon MO 89	Medium Pressure
	R-401B	R-410A	R-442A	FX80	
	R-402A	R-413A	R-444B	R-454A	
	R-402B	R-417A	R-447A	R-454B	
	R-403B	R-422A	R-448A	R-455A	
	R-404A	R-422D	R-449A	R-500	
	R-407C	R-423A	R-449B	R-502	
	R-407F	R-427A	R-450A	R-507A	
	R-408A	R-434A	R-452A	R-513A	
	R-409A	R-437A	R-453A		
	R-503			High Pressure	
Low Pressure Fluids ³	R-11	R-113	R-123	R-141b	Medium Pressure
Others	R-717				SPECIFIC

Non-exhaustive list: consult us if the fluid does not appear in this list
Composition Analysis is a "non-standard" mixture available on request

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