

FLUOROCARBONS EMISSION REDUCTION ACT DESIGNATED PRODUCT SYSTEM TARGET VALUES AND TARGET YEARS

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EXTENDED ABSTRACT

The fluorocarbon refrigerants (CFCs, HCFCs, HFCs) used in commercial refrigeration and air conditioning products (Type 1 specified products) cause ozone layer depletion and global warming. Therefore, the Act on Rational Use and Proper Management of Fluorocarbons (Fluorocarbons Emission Control Act), revised and enforced on April 1, 2015, requires the recovery of fluorocarbon refrigerants from commercial refrigeration and air conditioning products. Products that are technically capable of reducing fluorocarbon emissions during use, etc., are designated as "designated products," and efforts have been made to reduce the GWP of the fluorocarbons used in these designated products.

This article introduces the targets and the current status of commercialization for designated refrigeration and air conditioning products.

Table.1 Designated Product System: List of products with environmental impact target values and target years

Designated Product		Conventional refrigerants		Legal regulations for GWP values				Commercially available low GWP refrigerants			No goal set
			GWP	TARGET GWP	TARGET YEAR	Enforcement date	Discontinuation date		GWP	Flammability	Main Products
Residential Air-Conditioners		R410A	2090	750	2018	Completed	—	R32	675	A2L	Window type, whole building air conditioning
Air-Conditioners for stores and offices	Capacity less than 3 tons	R410A	2090	750	2020	Completed	3/2025	R32	675	A2L	
	Capacity of 3 tons or more	R410A	2090	750	2023	Completed	3/2025	R32	675	A2L	
Air-Conditioners for stores and offices All models		R410A	2090	750	2025	4/2025	—	R32	675	A2L	
VRF	H/P models for new installations	R410A	2090	750	2025	Completed	3/2027	R32	675	A2L	
VRF All models for new installation		R410A	2090	750	2027	4/2027	—	R32	675	A2L	Models using existing piping
Air-Conditioners for facilities General-purpose for new construction For factories and agricultural use		R410A	2090	750	2027	Completed	3/2029	—	—	—	
Air-Conditioners for facilities All models for new installation		R410A	2090	750	2029	4/2029	—	—	—	—	Models using existing piping Special-purpose models
Gas engine heat pump Air-conditioner H/P models for new installations		R410A	2090	750	2027	Completed	3/2029	—	—	—	
Gas engine heat pump Air-conditioner All models for new installation		R410A	2090	750	2029	4/2029	—	—	—	—	Models using existing piping
Centrifugal Compression Refrigeration Unit		R134a	1430	100	2025	Completed	—	R1234yf	4	A2L	
Chiller Unit	For air conditioning	R410A	2090	750	2027	Completed	3/2029	R32	675	A2L	
Chiller Unit All models		R410A	2090	750	2029	4/2029	—	R32	675	A2L	
Condensing unit	rated output over 1.5kW	R404A	3920	1500	2025	Completed	3/2029	R448A	1387	A1	
Condensing unit (rated output over 1.5kW)		R404A	3920	750	2029	4/2029	—	R744	1	A1	The minimum evaporation temperature is less than -45°C
Condensing Units/ Stationary Refrigeration Units (rated output 1.5kW or less)		R404A	3920	150	2029	4/2029	—	R290	4	A3	The minimum evaporation temperature is less than -45°C
Commercial refrigerator/freezer Built-in display case (Rated output 750W or less)	Integrated type	R404A	3920	150	2029	Completed	—	R290	4	A3	The minimum evaporation temperature is less than -45°C rated output over 750W
Centralized Refrigerators warehouses having effective volume of at least 50,000m		R404A	3920	100	2019	Completed	—	R717	1	B2L	
Centralized Refrigerators	Centrifugal type	R134a	1430	100	2029	4/2025	—	—	—	—	Water or brine with a minimum temperature of less than -40°C
	Screw type	R407C	1770	150	2031	4/2025	—	—	—	—	
	others	R410A	2090	750	2029	4/2025	—	—	—	—	
Other refrigeration equipment											Ice makers, water coolers, etc.