

Quality is more than a word

ESPEC



NEW *Low GWP refrigerant*

R-473A

CREATING A SUSTAINABLE WORLD

Climate change caused by global warming is having a significant impact on Earth's environment and people's lives. The issue of climate change is intertwined with the various goals of SDGs, and **achieving carbon neutrality by 2050 is one of the most critical issues in the world**, and we must address it immediately.

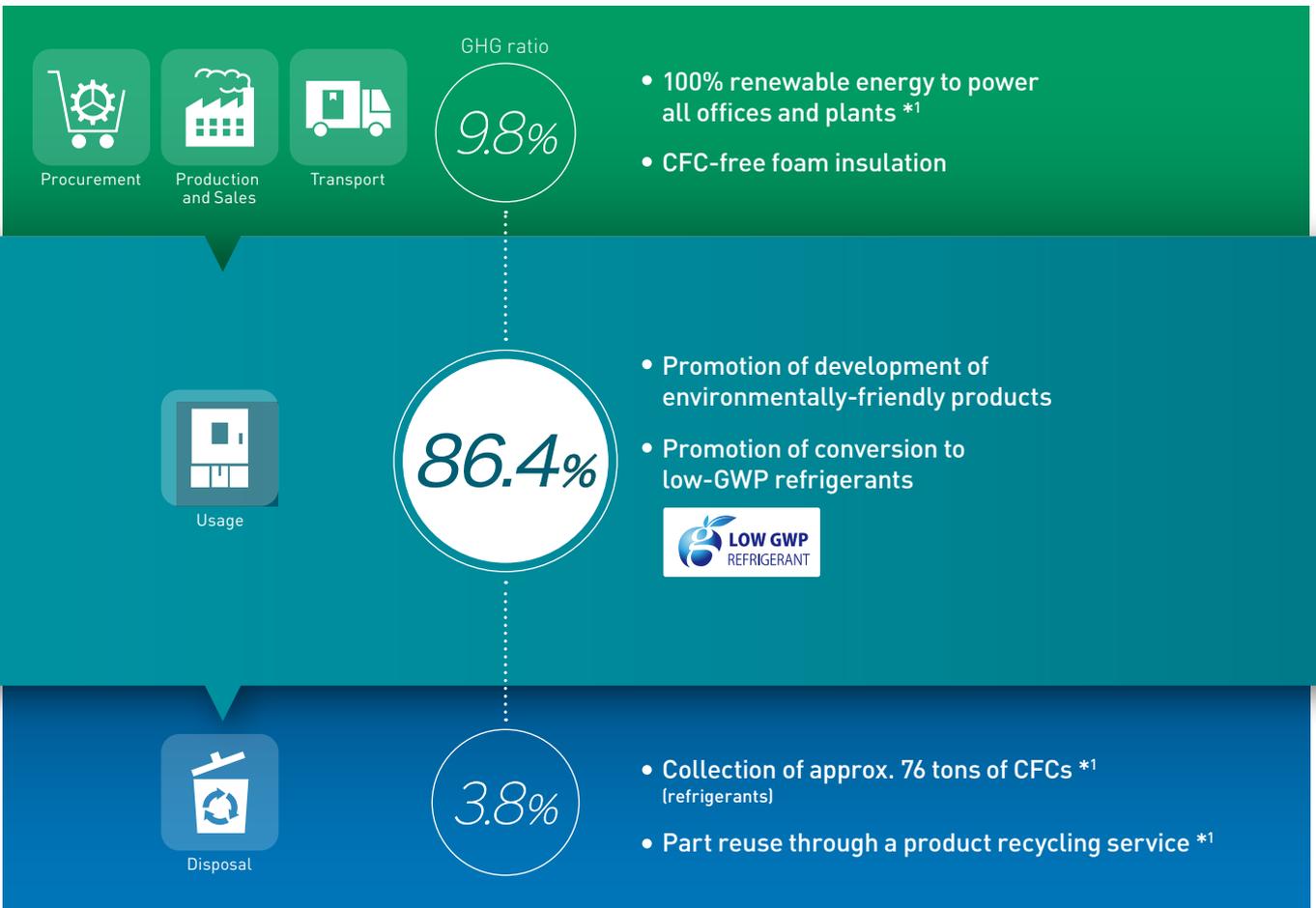
Effects from climate change (examples)



ESPEC programs to combat global warming

ESPEC recognizes that environmental conservation, preservation, and improvement are important themes for corporate management. In the future, we will carry out activities for further energy savings in our manufacturing processes and at our offices, and will actively proceed with the introduction of renewable energy. We will also work for further energy savings in our products, encourage suppliers to set reduction targets, and carry out activities for reducing GHG emissions throughout the supply chain.

Programs for Greenhouse gas (GHG) emission ratios throughout the supply chain and their reduction



*GHG emission ratios were calculated based on results for FY2021.

For applications requiring cooling below -50°C

R-473A

Cooling performance with lower GWP

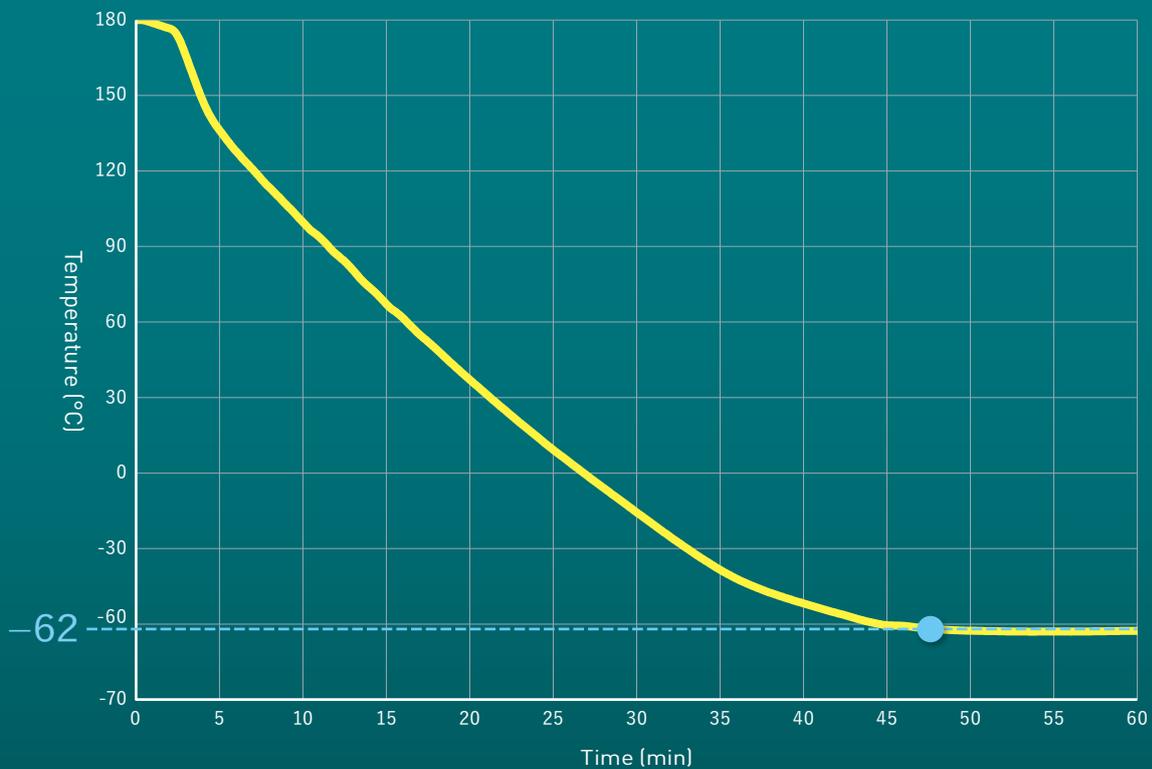
By combining ESPEC's unique technologies with a new long-term eco-friendly refrigerant, ESPEC has a focused vision to transform our portfolio to product line with lower GWP refrigerant.



Environmental Stress Chamber

[Temperature extremes achievement from $+180^{\circ}\text{C}$ to -62°C]

ARS-0680-5-W (Example)



— Newly developed model (R-449A/R-473A)

Characteristics of the new R-473A refrigerant

Safety	<ul style="list-style-type: none"> • Non flammable, non toxic (A1 ASHRAE classification) 	Performance	<ul style="list-style-type: none"> • Low glide • Minimum temperature -62°C
Sustainability	<ul style="list-style-type: none"> • Zero ozone depletion potential • GWP value of 1830 (88% lower than R-23) 	Security of supply	<ul style="list-style-type: none"> • Global supply chain

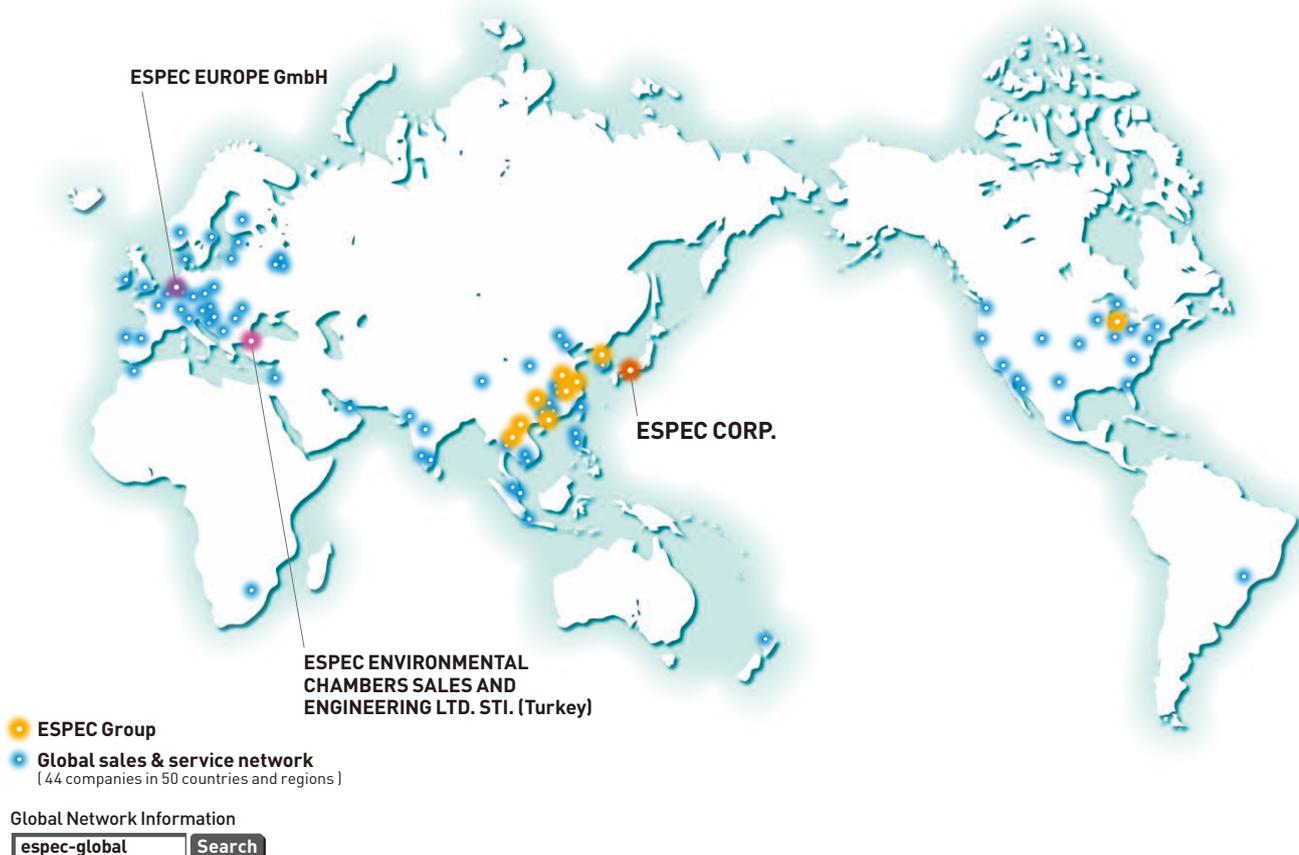
R-473A is an environmentally friendly low-GWP refrigerant that has cleared the regulations of each country.

ESPEC's aim is to suppress greenhouse gas emissions throughout the supply chain by using this refrigerant and by making comprehensive judgements based not only on GWP values, but also on the optimal balance of sustainability, reproducibility of tests, commercial availability and comprehensive efficiency.

	R-23	R-473A	R-508A
Safety classification	A1	A1	A1
GWP	14800	1830	13210

ESPEC GLOBAL NETWORK

ESPEC group has companies in countries around the world and **its sales & service network allow for stable procurement of refrigerants across the globe.** ESPEC will continue to provide high-quality and environmentally friendly products and services to its customers across the globe in its drive to be a highly trusted global company.



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● Specifications are subject to change without notice due to product improvements.

LEAF No.20260106 A1E08L00 (As of January 2026)