



ACS "GREEN" REFRIGERANT GAS

**“We at ACS
sustain the
environment
with a new
ecological gas
having the
lowest GWP ever
and giving you
lots of
advantages!”**



TESTING FOR
A BETTER PLANET



OUR COMMITMENT FOR A MORE SUSTAINABLE FUTURE

Our technology is inspired by nature

Our technology is inspired by nature, and for almost 90 years we have imitated nature by designing devices that replicate the climatic conditions that vary across our planet from the equator to the poles.

The vast arid regions of deserts, with their large difference in temperature between day and night; dense rainforests, where heat and frequent rainfall create a humid climate; the immense expanses of grasslands and steppes characterized by hot summers and freezing winters; the dense, green belts of temperate forests, and the wild boreal forests of the taiga, with long and bitter winters; the harsh tundra with average temperatures lower than zero; the delicate polar icepack and the fragile icecaps.

All these ecosystems and their biodiversity depend on a very delicate balance that is increasingly jeopardized by climate change.

Our daily actions and the effectiveness of the measures we take will determine the type of world that future generations will inherit.

Members of



**The emergency
we are experiencing
forces us to find new paths
with a new conscience
and awareness**



**IT'S TIME TO
PROTECT
OUR PLANET!**

We look to the Future and we see an opportunity

Effective from January 1, 2015 the European Commission has released an F-gas regulation aiming at protecting the environment and preventing unwanted effects on climate changes by containing the global average temperature increase.

What does the European regulation entail for the environmental testing sector?

Most of the environmental test chambers that need to reach temperatures below -50°C use a type of F-gas that falls within those called HFCs. These refrigerant gases usually have a GWP -Global Warming Potential - value much higher than the imposed limit. In derogation from the regulation, their use is allowed according to quotas. The use of these gases too, however, will be drastically reduced following a precise roadmap: the next goal is to reduce fluorinated greenhouse gases (F-gases) emissions by 79% by 2030.

The only alternative known to date in the ULT (Ultra Low Temperature) refrigeration sector is based on the use of hydrocarbons as refrigerants. Hydrocarbons are extremely flammable, and although their performance is satisfactory from a thermodynamic perspective, there are significant safety limits connected with their use.

Safe solutions are therefore required, capable of both preserving the environment by minimizing GWP and maintaining the performance of the HFCs that will soon be banned.

**Beyond deadlines,
we believe it is necessary to act now
and provide for new solutions,
without further delay.**

OUR MAIN GOAL IS TO MINIMIZE GWP

5 years project

Team of more than **15** people

Universities and **2** Research Centers involved

More than **35** chambers tested in ACS R&D lab

More than **50,000h** test data recorded

THE LOWEST GWP

R472A

R472B

R472A is ideal for customized chambers: its 353 GWP is **the lowest ever**, 98% lower than other gases used for ULT applications, such as R23 (14.800 GWP).

R472B, with its 526 GWP, is the perfect solution for the most widespread use and the majority of environmental test standards used by worldwide testing laboratories.

	R23	R472A	R472B
Global Warming Potential	14.800	353	526
Status	Bannable	Better	
Performance	Standard	Guaranteed	
Availability in the market	Running out	Future Proof	

We are ready... start now with us!

We at ACS have already accepted the challenge and thanks to our deep experience in refrigeration technologies and our continuous research activity in collaboration with Universities, Research Centers and Accreditation Centers **have found the right alternative.**

The 2 new “green” gases **R472A and R472B** - able to reach the extreme temperature of -70°C with very low GWP values - are the result of our R&D efforts.

THE MAIN ADVANTAGES OF OUR GAS



The real
green
alternative
to R23

HOMOGENEOUS MIXTURE

The high homogeneity of our gas mixture creates the best conditions for an easy use and refill.

Use the gas bottle even partially

Mixture homogeneity always ensured

Reuse the gas quantity remained in the bottle

Safe gas storage

SAFETY

The ACS gas is non-flammable, non-toxic and is safe even in the event of escapes. It is guaranteed for a use without risks.

The American Society of Heating , Refrigerating and Air Conditioning Engineers is the world's leading authority on regulations and certifications in the refrigeration industry.



THE MAIN ADVANTAGES OF OUR GAS



The real
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EASY RETROFITTING

Refrigeration plants currently using R23 are 99% compatible with our gas; those machines that are not perfectly compatible can be adapted simply without structural modifications.

COMPATIBILITY

The laboratory analyses of the mixture components subjected to endurance test showed that our gas is perfectly compatible with the commercial elements used in cascade refrigeration plants charged with R23 or similar. It is therefore not harmful and does not cause abnormal wears or premature aging.

AVAILABILITY

The mixture components are easily procurable, so guaranteeing availability on the market and a long lifetime to our gas.

We have selected Nippon Gases, one of the best gas producers in the world with a strong international presence, for the exclusive production of its ecological gases R472A and R472B to be solely used in our chambers.



The ACS logo features the letters 'ACS' in a bold, white, sans-serif font. A small orange circle is positioned below the 'A'. To the right of the logo is a vertical white line, followed by the tagline 'TESTING FOR A BETTER PLANET' in a smaller, white, sans-serif font. The background is a night sky with the Milky Way galaxy visible, reflected in a calm lake. Silhouettes of mountains and trees are visible in the distance.

ACS | TESTING FOR
A BETTER PLANET

acstestchambers.com

Angelantoni | TECHNOLOGY
FOR LIFE

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