



HYDROCARBON (HC) REFRIGERANT GAS- NATURAL ORGANIC COMPOUND

Environmental- Friendly

Non-Ozone Depleting & Non- Global Warming

UN-Montreal Protocol & Kyoto Protocol Compliance

Environmental Friendly Refrigerant Gas

(non-ozone depleting & non-global warming substance)

Energy Savings Up To 30%



HydroCarbon Refrigerant Gas
HC-12a®, HC-22a® & HC-502a®
(Applicable For)



Southeast Asia
Authorised
Representative



ENER-SAVE SDN. BHD.

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Tel: +607-557 2669 Fax: +607-558 2669

E-mail: sales@ener-save.biz Website: www.ener-save.biz

INTRO



HydroCarbon Refrigerant is a blend of environmentally safe fluid designed as a **direct retrofit and replacement refrigerant option for replacing CFC/HCFC/HFC** refrigerant in commercial air conditioning and refrigeration system.

HC Refrigerant Type

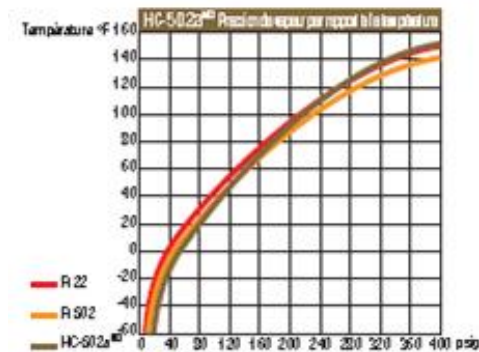
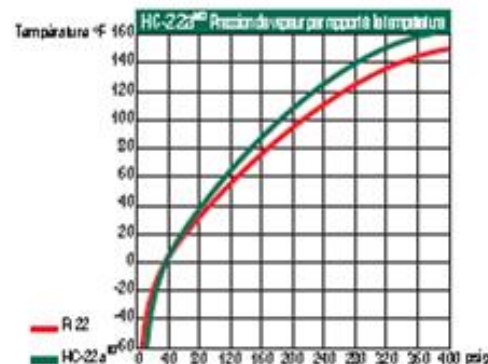
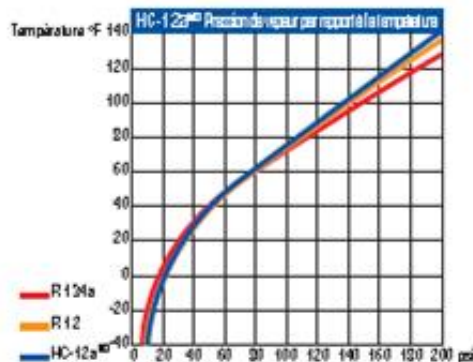
- **HC-12a** is designed as a drop-in replacement for ozone-depleting CFC R12 and global-warming HFC R134a refrigerant.
- **HC-22a** is designed as a drop-in replacement for ozone-depleting HCFC R22 refrigerant and global-warming HFC R407c, R410a & R411a refrigerant
- **HC-502a** is designed as a drop-in replacement for ozone-depleting CFC R502, R404a, R408a & R507a refrigerant.



OPERATION



Operation: HC-22a possesses similar volumetric refrigerating effects to R22 refrigerants. HC-12a possesses similar volumetric refrigerating effects to R134-a. Operates at lower head pressures and offers improved cooling properties and performance.



FEATURES



- Highly efficient
- Non-ozone depleting
- Non-corrosive
- Non-toxic
- Non-global warming
- Molecule Lighter
- Energy Saving up to 30%
- Environmental Friendly
- Enhance Life and Performance of A/C System



REFRIGERANT GAS CHART

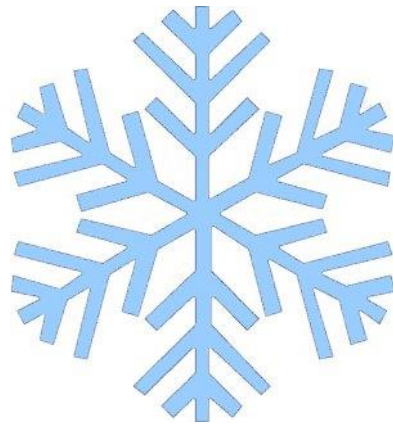


Product	HC12a	HC22a	HC502a	R22	R502	R12	R134-a
Chemical Type	HC	HC	HC	HCFC	CFC+ HCFC	CFC	HFC
Global Warming Potential (CO ₂ = 1, 100 years basis)	8	8	8	1,800	1,600	10,600	1,600
Ozone Depleting Potential	0	0	0	0.032	0.5	0.9	0
Atmospheric Life	< 1 year	< 1 year	< 1 year	12 years	16 years	130 years	16 years
Oils	Both	Both	Both	Mineral	Synthetic	Mineral	Synthetic
Leak Detection	Hydro-carbon	Hydro-carbon	Hydro-carbon	Halide	Halide	Halide	Halide
Efficiency btu/lb, Absorb more heat	177	186	191	101	74.6	71	93
Autoignition (F)	1385	800	800	n/a	1385	n/a	1385
Refrigerant Mass Charge Size (R12= 100%)	35% - 40%	40%	40%	100%	90%	100%	90%
Toxic Thermal Decomposition	None	None	None	Phosgene Gas	Hydro Fluoride Gas	Phosgene Gas	Hydro Fluoride Gas

COMPATIBILITY



Compatibility: Compatible with most common refrigeration materials and lubricants including metal components, mineral and synthetic oil (Ester and PAG) lubricants, seals, gaskets, hoses, compressor, and O-rings.



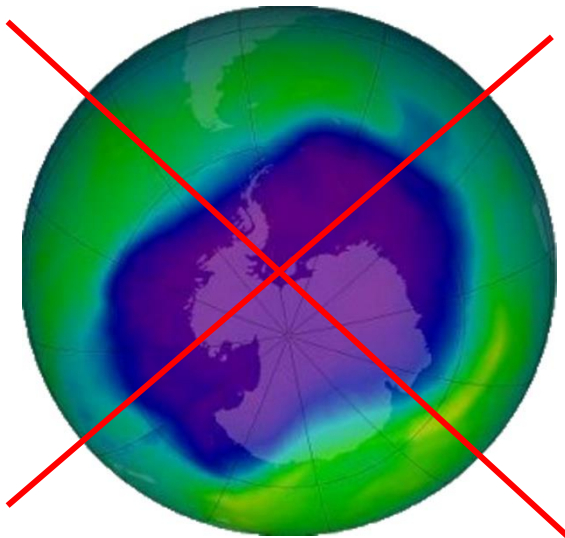
ENVIRONMENT



Environment: 100% natural organic refrigerant, non-ozone depleting, non-global warming. Full compliance with the UN Montreal Protocol, Kyoto Protocol & ISO 14001

Non-Ozone Depleting

Non-Global Warming



CERTIFICATE OF ANALYSIS



NORTHCUTT, Inc.

P.O. Box 4276 • Wichita, Kansas 67204
5055 North Broadway • Wichita, Kansas 67219
(316) 838-1477 • (800) 279-3540 • FAX: (316) 838-6203

2105 N. VFW Road • Garden City, KS 67846
(620) 276-9552 • FAX: (620) 276-3988
Toll Free 866-444-4170

www.herefrigerant.com



info@herefrigerant.com

Certificate of Analysis

Product Name: HC-12a®

DOT Shipping Information

Petroleum gases, liquefied,
Class 2.1, UN1075
Non Corrosive

NFPA Ratings

Health: 1
Flammability: 4
Reactivity: 0

COMPONENT	WEIGHT %
Hydrocarbon Refrigerant	99.01
Other Hydrocarbons	0.99
Moisture Content (PPMW):	
Total Sulphur (PPMW):	< 1
Residue (PPMW):	< 5
Odor :	Pass
Specific Gravity :	0.535

I am not offering a chemical substance for entry in violation of TSCA or and applicable rule or order there under. Additionally our product is non-ozone depleting and non-global warming. The specialty gas raw materials used in the production of HC-12a® are produced by the ISO 9001:2000 registered facility, Diversified CPC based in Channahon, IL, U.S.A., certificate number A5410.

I certify that all chemical substances in this shipment comply with all applicable rules and orders under TSCA and that I am not offering a chemical substance for entry in violation of TSCA or and applicable rule or order there under. Additionally our product is non-ozone depleting and non-global warming. The specialty gas raw materials used in the production of HC-12a® are produced by the ISO 9001:2000 registered facility, Diversified CPC based in Channahon, IL, U.S.A., certificate number A5410.

Very Truly Yours

Bill Q. Johnston, Jr.
President

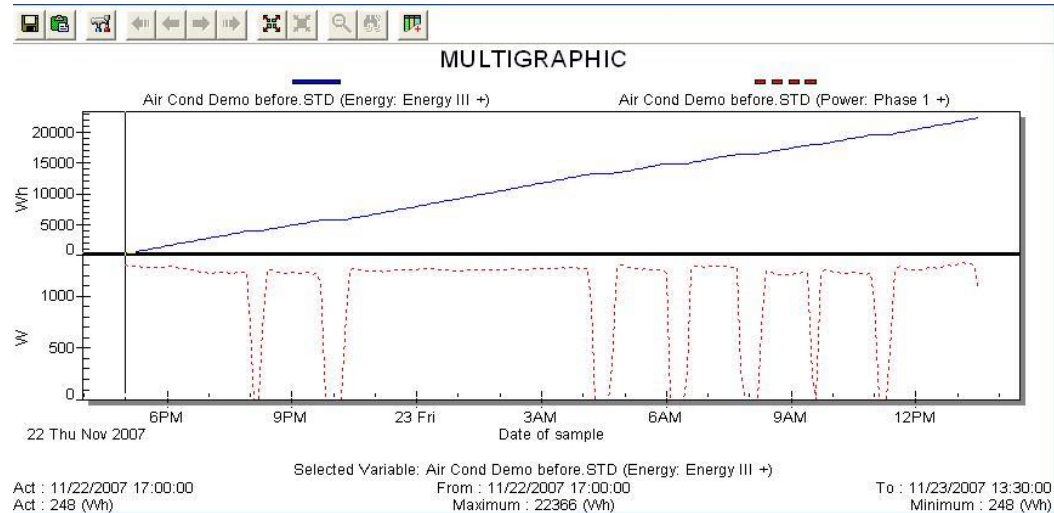
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TESTIMONY

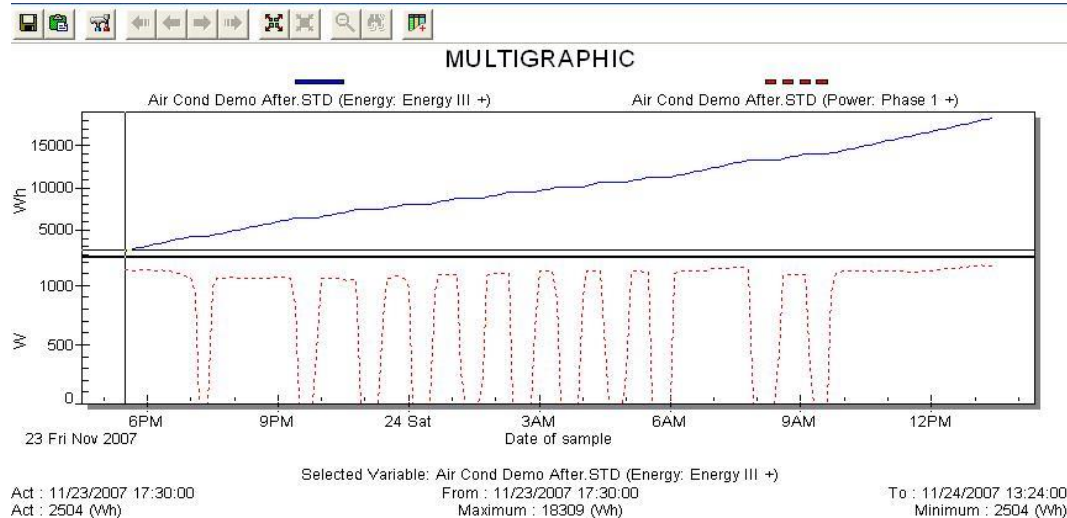
~ HCFC R22

Power: 22,118Wh



~ HC-22a

Power: 15,805Wh



HC REFRIGERANT GAS USERS



- 1. JB Cocoa Sdn Bhd- Since year 2009
- 2. Kualiti Alam Sdn Bhd- since year 2009
- 3. SDP Manufacturing Sdn Bhd- since year 2009
- 4. YKK (M) Sdn Bhd- since year 2009
- 5. Kraft Foods Manufacturing Sdn Bhd- since year 2010
- 6. Rikevita (M) Sdn Bhd- since year 2010
- 7. Siegwerk Malaysia Sdn Bhd- since year 2010
- 8. EE Guan Construction Sdn Bhd- Since 2009
- 9. Joncan Composite Sdn Bhd- Since 2009
- 10. Sinar TM Sdn Bhd- Since 2009
- 11. DGR Packing & Supply Sdn Bhd- Since 2009
- 12. Pusat Latihan Komputer Era Informasi- Since 2008
- 13. RPI IT E Centre- Since 2008
- 14. JCY HDD Technology Sdn Bhd- Since 2008 (Carrier Chiller 200tons)
- 15. Suntec Alarm System & Automation- Since 2009
- 16. Yuan Rong Sdn Bhd - Since 2010
- 17. RadaTech Corporation Sdn Bhd- Since 2010
- 18. Network Food Industries Sdn Bhd- Since 2011 and more



END OF SLIDES



THANK YOU!

More Detail: <http://hcrefrigerant.ener-save.biz>

ENER-SAVE SDN BHD

Tel: 07-557 2669

