



Refrigerant Solutions Ltd

RS-24 DOMESTIC REFRIGERATOR TRIAL

Refrigerant Services Inc, Canada at their test site in Dartmouth, Nova Scotia carried out a field trial replacing R12 with RS-24 in a domestic refrigerator operating on mineral oil. No changes were made to the hardware or the existing lubricant which was retained for use with RS-24.

SYSTEM SPECIFICATIONS

Manufacturer: General Electric

Size: 198 cubic litres

Kw : 0.1 kw

Type: single door, single evaporator with freezer compartment, non frost free.

Age: approx. 25-30 years

Refrigerant charge: 0.128 kg

Voltage: 115/1/60

MODIFICATIONS TO SYSTEM

No modifications were made to the system.

PROCEDURES

1. Installed gauges on suction and discharge lines.
2. Installed temperature sensor on suction and discharge lines approx. 15cm from compressor.
3. Installed run time recorder on compressor.

DOMESTIC REFRIGERATOR FIELD TRIAL RESULTS

	RECORDED DATA	
	R12	RS-24
HIGH LOAD CONDITIONS		
Suction pressure	0.34	0.21
Suction temperature	22	20
Discharge pressure	8.5	8.2
Discharge temperature	63	60
Space temperature	3	3
Ambient temperature	27	24
Amperage	1.49	1.47
Voltage	118	117
Run time/24 hours	12.34	10.64

NOTES:

Pressures are in bars

Temperatures are in Celcius

STAGE 1

Operated the system with existing R12 refrigerant charge and recorded baseline data including voltage, amperage, suction pressure, suction temperature, discharge pressure, discharge temperature, space temperature, ambient temperature and compressor run time.

STAGE 2

1. Recovered R12 charge and evacuated system to 300 microns.
2. Recharged system with RS-24 with approx. 90% by weight of original charge.
3. Operated the system and recorded baseline data similar to stage 1.

SYSTEM OBSERVATIONS

1. There were no significant changes in operating pressures, temperatures or efficiencies.
2. No oil return problems were experienced and oil return was found to be satisfactory.
3. There was no negative impact on the system operation or components.

CONCLUSIONS

RS-24 installed as a Drop-in replacement for R12 in domestic refrigerators provides similar capacity to systems on R12, provides satisfactory oil return and has no immediate negative effects on the equipment or operation.