



FRIGI-TECH – TESTING AND INFORMATION

<u>TYPICAL DATA</u>	<u>ASTM TEST</u>	<u>SUNISO 3GS</u>	<u>FRIGI-TECH</u> 5% FRIGI-TECH 95% 3GS
VISCOSITY cSt/100°	D 445	33	31.3
VISCOSITY cSt/212°	D 445	4.44	4.40
VISCOSITY INDEX	D 2270	0	0
POUR POINT °F	D 97	-40°	-35°
FLASH POINT °F	D 92	335°	345°
ANILINE POINT °F	D 611	165°	167°
DIELECTRIC STRENGTH KV	D 877	30	26
COPPER STRIP CORROSION	D 130	1	1
SEALED CHAMBER DISCOLORATION	D 1500	(1.0) CLEAR	(1.0) CLEAR
CHLORIDES % WT.	D 808	0.25	0.25
FALEX MODIFIED WEAR TEST	LUBRICITY RATING, LBS OF FORCE APPLIED	23.20	582.22*

(*) 582.22 POUNDS OF PRESSURE WAS THE MAXIMUM LOAD LIMIT OF THE EQUIPMENT. THERE WAS NO BREAKDOWN IN LUBRICITY AT THIS POINT OF THE FRIGI-TECH SAMPLE, EITHER BEFORE OR AFTER REMOVAL FROM THE SEALED CHAMBER AGING TEST.

WHAT IS SO DIFFERENT ABOUT REFRIGERANT OILS?

ALTHOUGH THE COMPRESSION COMPONENTS OF CENTRIFUGAL COMPRESSORS REQUIRE NO EXTERNAL LUBRICATION, ROTATING SHAFT BEARINGS, SEALS AND COUPLING MUST BE CONSTANTLY AND ADEQUATELY LUBRICATED. JUST AS OTHER DRIVE SYSTEMS, HOWEVER, VERY FEW REGULAR OILS COULD MEET THE VISCOSITY AND DRYNESS REQUIREMENTS AS OUTLINED ABOVE. FOR RECIPROCAL SYSTEMS, THE REFRIGERANT GAS CARRIES SOME OIL WITH IT INTO THE CONDENSER AND THE EVAPORATOR. THIS OIL MUST BE RETURNED TO THE COMPRESSOR WITHIN A REASONABLE TIME PERIOD AND HAVE ADEQUATE FLUIDITY AT LOW TEMPERATURES. THE OIL MUST ALSO REMAIN MISCIBLE AND BE FREE OF SUSPENDED MATTER THAT MIGHT CLOG THE SYSTEM. IN SMALL, POT TYPE, HERMETIC REFRIGERATION/AIR CONDITIONING SYSTEM, THE OIL IS NORMALLY NEVER CHANGED, SO IT MUST LAST FOR THE LIFE OF THE COMPRESSOR.

WHAT IS IMPORTANT AND WHY?

IN ALL HERMETIC SYSTEMS, THE CHEMICAL STABILITY REQUIRED OF THE REFRIGERANT OIL IN THE PRESENCE OF REFRIGERANTS, METAL, INSULATION MATERIALS AND EXTRANEIOUS CONTAMINANTS, IS PERHAPS THE MOST IMPORTANT CHARACTERISTIC DISTINGUISHING REFRIGERANT OILS FROM THOSE USES IN OTHER APPLICATIONS. THEREFORE, ANY PRODUCT USED TO SUPPLEMENT THIS REFRIGERANT OIL MUST EXHIBIT ALL OF THE ABOVE CHARACTERISTICS OF THE REFRIGERANT OIL TO THE SAME OR GREATER DEGREE.

FRIGI-TECH PASSES!

FRIGI-TECH, AS SHOWN ABOVE, NOT ONLY MEETS THESE DEMANDING STANDARDS, BUT ALSO INCREASES THE OIL'S LUBRICITY.

SUNISO 3GS® AS A BENCHMARK

SUNISO IS THE CERTIFIED REFRIGERANT OIL USED AS A STANDARD MAJOR MANUFACTURES OF AIR CONDITIONING COMPRESSORS.

POUR POINT AND FLOCK POINT

THE POUR POINT AFTER THE ADDITION OF FRIGI-TECH DOES INCREASE FROM -45°F TO -35°F. THE FLOCK POINT INCREASES FROM -65°F TO -45°F. ALTHOUGH THIS INCREASE DOES NOT AFFECT MOST APPLICATIONS, INCLUDING WALK-IN FREEZERS, SINCE MOST REFRIGERATION UNITS DO NOT DROP TEMPERATURES BELOW -20°F; CAUTION SHOULD BE EXERCISED IN APPLICATIONS THAT DO FALL BELOW -25°F AND SHOULD ONLY BE ATTEMPTED AFTER CONFERENCE WITH A QUALIFIED REFRIGERATION ENGINEER.

DIELECTRIC STRENGTH

THE DIELECTRIC STRENGTH OF THE 95/5% MIXTURE IS 26,000 VOLTS, INDICATING EXCELLENT INSULATING PROPERTIES, AS NEED IN HERMETICALLY SEALED UNITS. THE COPPER STRIP TEST SHOWS NO SIGNIFICANT DIFFERENCE AFTER THE INTRODUCTION OF FRIGI-TECH. THIS SHOWS THAT NO SIGNIFICANT CHEMICAL REACTION WITH COPPER, THE COMMON COIL MATERIAL, IS PRECIPITATED BY INTRODUCING OF FRIGI-TECH.

2000% IMPROVEMENT IN LUBRICITY FALEX TEST

PERHAPS THE ONLY AND MOST SIGNIFICANT DIFFERENCE THAT WAS NOTICED AFTER THE INTRODUCTION OF FRIGI-TECH WAS A 2000% IMPROVEMENT IN THE MIXTURES LUBRICATING ABILITY. THE MODIFIED FALEX TEST WAS USED TO DETERMINE LUBRICITY AND THE RESULTS ARE SHOWN ABOVE. FRIGI-TECH EXCEEDED THE 582 POUND LIMITS OF THE TEST.