



Oil Analysis

1. Machinery Information.

Plant	XXXX	Location.	San Antonio, TX
Contract No.	V20015	Date	6-20-2006
Unit ID#	HS#4- 300HP	Refrigerant	NH3
Compressor Model	XXXX	S/N	XXXX
Oil type/Viscosity	XXXX	Run hours	45089

2. Analysis data

Sample date		10/10/02	4/2/03	3/30/04	10/4/04	3/31/05	11/15/05	6/20/06	
Sample Hr.		23412	24654	27610	31918	33720	38981	45089	
Contents	Alarm								
Iron (ppm)	<10	8	10	5	3	2	1	2	
Lead(ppm)	<10	0	0	1	1	0	0	0	
Copper(ppm)	<10	1	1	0	0	0	0	0	
Tin(ppm)	<10	0	0	0	0	0	0	1	
Aluminium(ppm)	<10	0	0	1	0	0	0	1	
Chromium(ppm)	<10	0	0	0	0	0	0	0	
Nickel(ppm)	<10	0	1	0	0	0	0	0	
Silver(ppm)	0	0	0	0	0	0	0	0	
Titanium(ppm)	0	0	0	0	0	0	0	0	
Silicon(ppm)	0	0	0	0	0	0	0	0	
Boron(ppm)	0	0	0	0	0	0	0	0	
Sodium(ppm)	0	0	0	0	0	0	2	0	
Potassium(ppm)	0	7	9	9	15	8	0	6	
Phosphorus(ppm)	0	1	8	0	0	1	1	0	
Zinc(ppm)	<10	9	9	5	2	1	1	1	
Calcium(ppm)	0	16	15	7	6	4	0	0	
Barium(ppm)	0	0	5	0	0	0	0	0	
Magnesium(ppm)	<10	0	0	0	0	0	0	0	
Molybdenum(ppm)	0	0	0	0	0	0	0	0	
Antimony(ppm)	0	0	0	0	0	0	0	0	
Water	N	N	N	N	N	N	N	N	
Water(ppm)	<50	25	26	21	25	27	22	21	
Insolubles	N	N	N	N	N	N	N	N	
Dispersant	G	G	G	G	G	G	G	G	
Viscosity@40C	+/- 15%	98.9	103.7	75	83.5	96.4	77.2	69.2	
T.A.N.	<0.2	0.07	0.04	0.05	0.16	0.02	0.02	0.08	
Ferro DRS	<30	2.5	12.5	22.5	28.9	4.5	5.5	6.5	
Ferro DRL	<15	3.3	6.5	10.5	17.5	3.0	4.2	4.0	

3. Oil Maintenance History.

6/20/2005:Switch oil to Semi-synthetic oil
 11/15/04:Oil filters/strainer changed.
 5/10/2003:Change oil

4. Comment

6/20/2006:Sample appeared normal
 11/11/05:Sample appeared normal after oil change.
 3/31/05:Viscosity has been increasing.
 10/4/04:Viscosity increasing. High TAN.
 4/2/3/03:Higher than normal viscosity change
 10/10/02:Higher than normal viscosity change