

VOLCANO PANVAL #1

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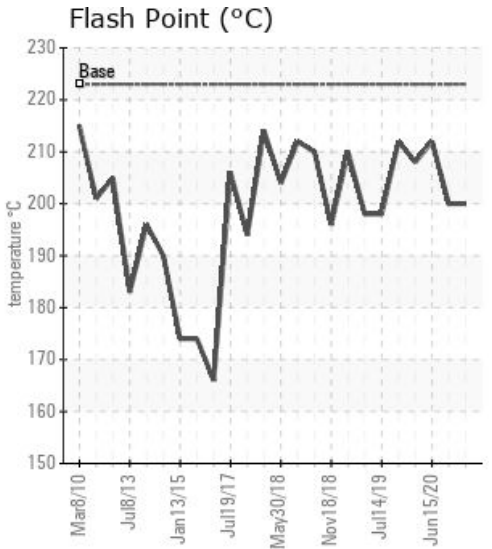
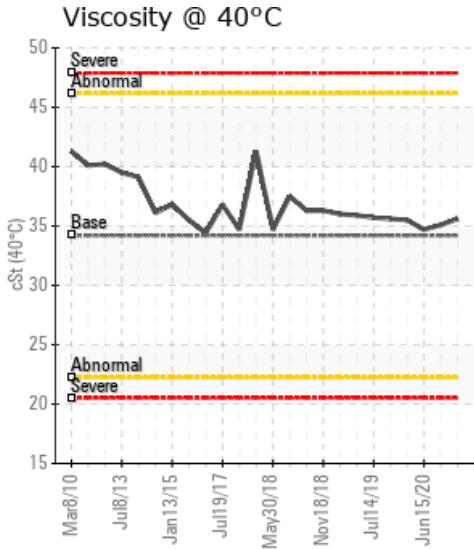
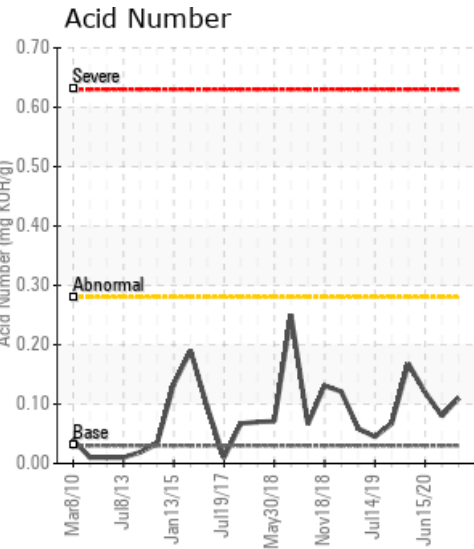
System Information
 System Volume: 51500 ltr
 Bulk Operating Temp: 500F / 260C
 Heating Source:
 Blanket:
 Fluid: PETRO CANADA PETRO-THERM
 Make: VOLCANO EL24

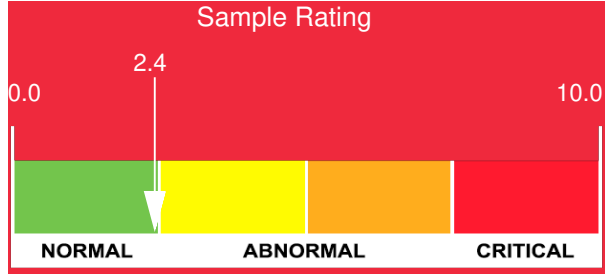
Sample Information
 Lab No: 02390714
 Analyst: Jean Lacharite
 Sample Date: 11/26/20
 Received Date: 12/02/20
 Completed: 12/16/20
 Jean Lacharite
 jean.lacharite@hollyfrontier.com

Recommendation: the viscosity is good, GCD 10%, 50% and 90% is good, insoluble are low. GCD curve graph is good. Your potassium is yellow, 25 ppm. Your sodium is yellow, 22 ppm. Contamination by glycol is possible. continue operation and check in 10 to 12 months.

Comments:

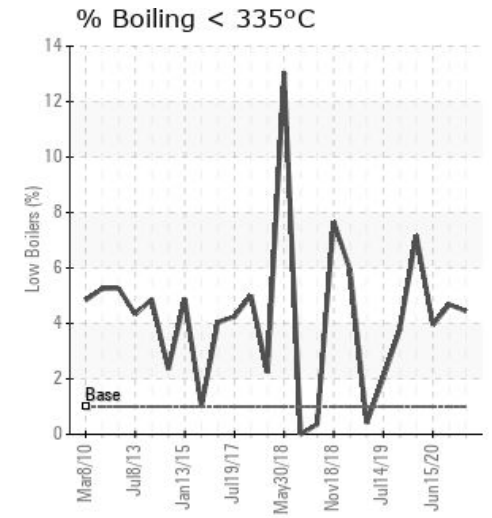
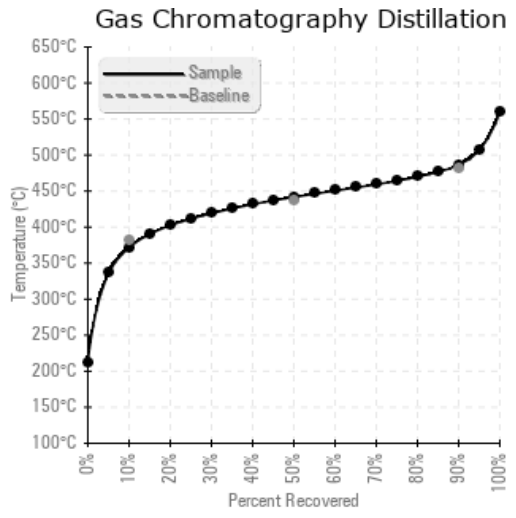
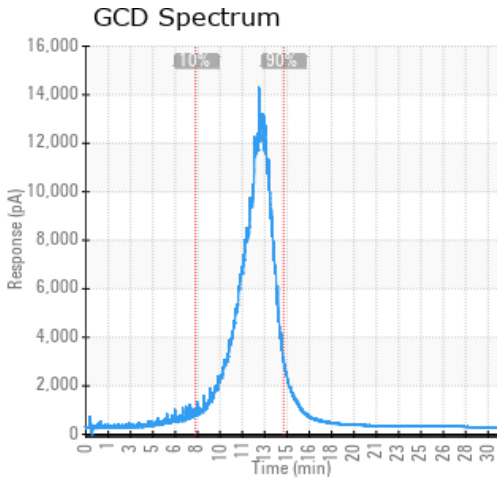
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
11/26/20	12/02/20	36.0y		392 / 200	40.1	35.6	0.11	0.249	701 / 372	827 / 442	907 / 486	4.44
10/01/20	10/06/20	0.0y	Refroidisseur Specia	392 / 200	70.6	35.1	0.08	0.060	699 / 371	827 / 442	906 / 486	4.68
06/15/20	06/16/20	36.0y	REFROIDISSEUR	414 / 212	24.8	34.7	0.12	0.106	708 / 376	830 / 443	907 / 486	3.94
01/28/20	01/29/20	36.0y	REFROIDESSEUR	406 / 208	3.2	35.5	0.168	0.088	667 / 353	816 / 436	895 / 479	7.18
12/03/19	12/04/19	36.0y		414 / 212	2.8	35.6	0.067	0.111	694 / 368	811 / 433	893 / 478	3.77
Baseline Data				433 / 223		34.2	0.03		720 / 382	817 / 436	900 / 482	1.00





Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc	
11/26/20	3	0	0	0	0	0	0	0	0	0	0	22	25	0	0	0	0	0	0	0	0	0	0	0	0
10/01/20	0	0	0	0	0	0	0	0	0	0	0	22	26	0	0	0	0	0	0	0	0	0	0	0	0
06/15/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/28/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Baseline Data			0	0						0		0	0						0				0		

Elemental analysis results (above) in parts per million (ppm). [10,000 ppm = 1.0%]



Historical Comments

10/01/20	Graphique GCD léger craquage des fractions a bas point d'ébullition (low boiler). GCD 10%, 50% et 90% sont ok, Pentane insolubles 0.060 ok, Viscosité @ 40C ok, Nombre Acid (AN) 0.08 ok, Eau 70.6 ppm ok. Seul la présence de Sodium (Na) et Potassium (K) sont anormale, contaminant extérieur. surveiller. Le résultat semble normale, Refaire une analyse dans 10-12 mois.
06/15/20	la courbe est bien. les GCD distillation point sont bien, pas de fer, viscosité bonne. continuer.
01/28/20	La valeur de la viscosité, COC flash point et acide number sont bonne. Nous avons une degradation thermique ce qui cause une augmentation de low boilers. le graphique nous donne la presence de low boilers encore en basse quantité. On peut diminuer les low boilers avec une ventilation de la chambre d'expansion.
12/03/19	Ok, pour usage continu. refaire une autre analyse dans un periode de six mois, juillet 2020.

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