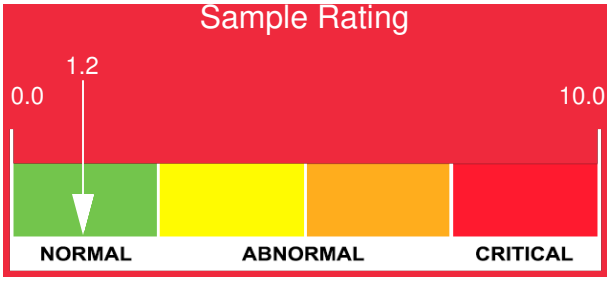
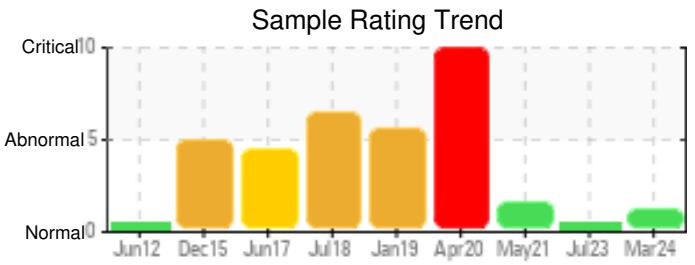




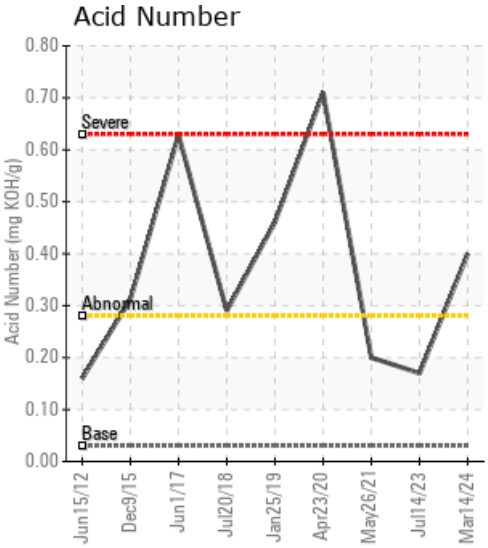
PASTE PLANT 1 HTF

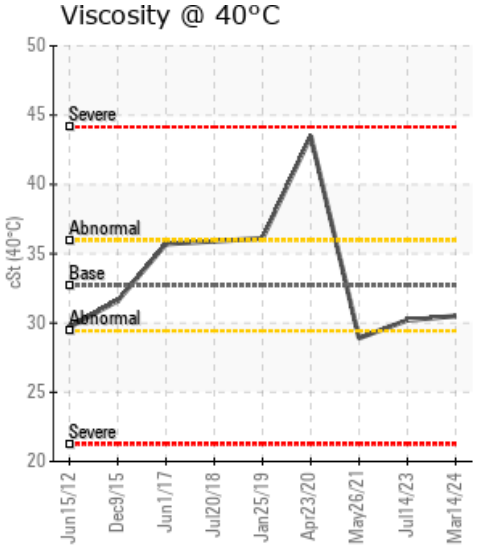
Customer: PTRHTF60012	System Information	Sample Information
TOMAGO ALUMINIUM COMPANY 638 TAMAGO ROAD, TOMAGO NEW SOUTH WALES NEWCASTLE, 2324 AU Attn: Julien Maugain Tel: (040)584-3717 E-Mail: julien.maugain@tomago.com.au	System Volume: 15000 ltr Bulk Operating Temp: 419F / 215C Heating Source: Blanket: Fluid: PETRO CANADA CALFLO AF Make: GKSS INDUSTRIAL HEAT	Lab No: 02625470 Analyst: Bill Quesnel CLS,OMA II,MLA-III,LLA-I Sample Date: 03/14/24 Received Date: 03/28/24 Completed: 04/08/24 Bill Quesnel CLS,OMA II,MLA-III,LLA-I

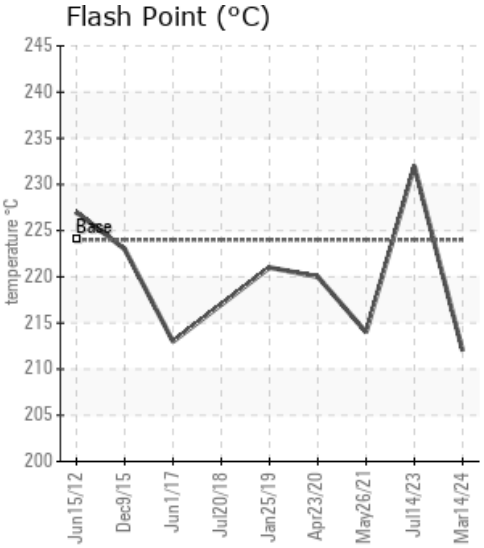
Recommendation: The Acid Number has increased since the previous sample. All other fluid properties are acceptable. Resample at the next service interval to monitor.

Comments: Acid Number (AN) is abnormally high.

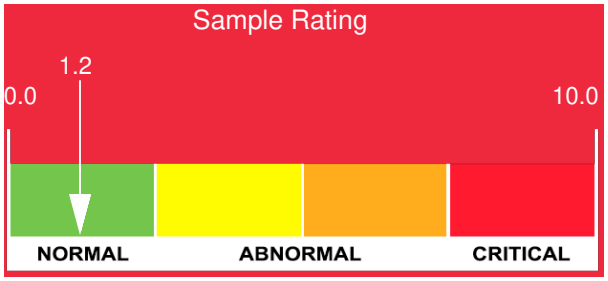
Sample Date	Received Date	Fluid Age	Sample Location	Flash Point (COC)	Water (KF)	Viscosity (40°C)	Acid Number	Solids	GCD 10%	GCD 50%	GCD 90%	GCD % < 335°C
	mm/dd/yy			°F/°C	ppm	cSt	mg/KOH/g	%wt	°F/°C	°F/°C	°F/°C	%
03/14/24	03/28/24	3.0y		414 / 212	146	30.5	0.40	0.123	687 / 364	797 / 425	899 / 482	3.64
07/14/23	08/14/23	2.0y		450 / 232	90.0	30.2	0.17	0.233	682 / 361	796 / 425	898 / 481	4.38
05/26/21	08/13/21	0.0y	SAMPLE 2	417 / 214	43.7	28.9	0.20	0.818	670 / 355	793 / 423	896 / 480	5.50
04/23/20	08/14/20	9.0y	PP1 LIST MIXER	428 / 220	3631.0	43.5	0.71	1.42	707 / 375	801 / 427	906 / 486	0.86
01/25/19	04/01/19	0.0y		430 / 221	25.8	36.1	0.461	0.598	694 / 368	792 / 422	897 / 481	1.48
Baseline Data				435 / 224		32.7	0.03		693 / 367	790 / 421	887 / 475	2.5

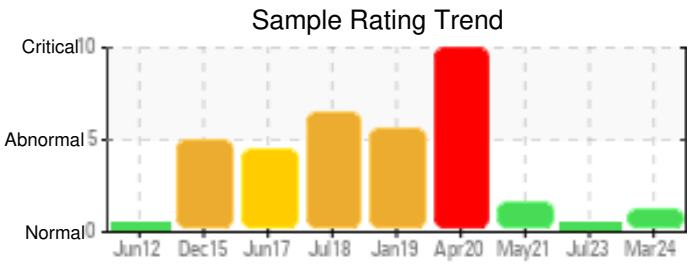






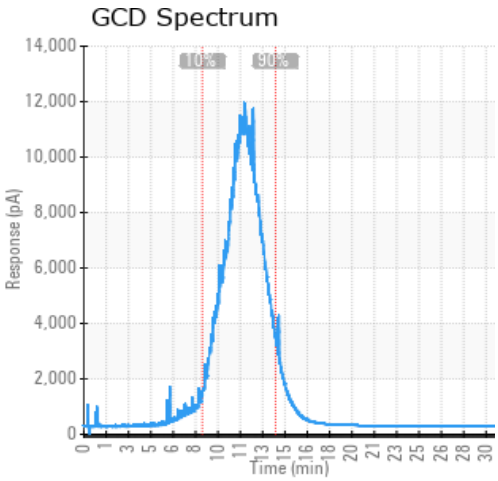
PETRO-CANADA LUBRICANTS

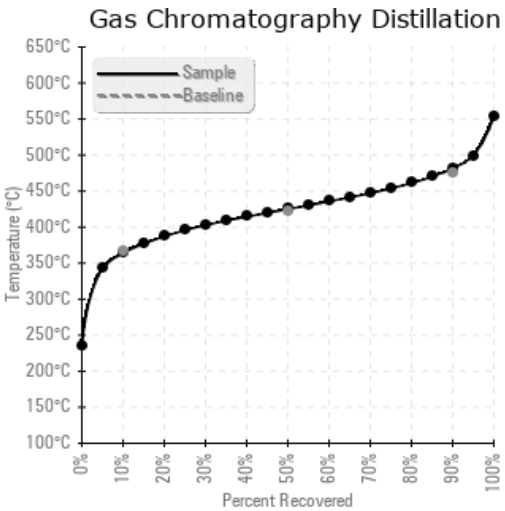


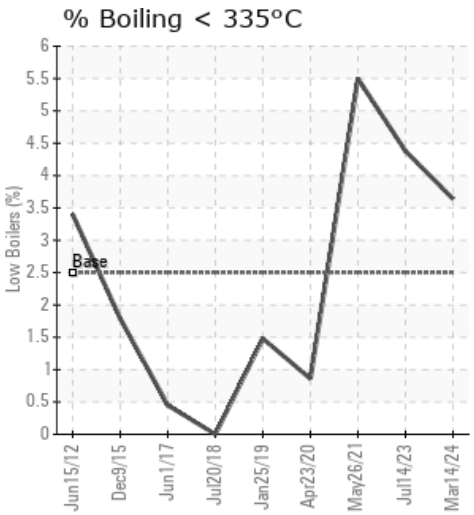


Sample Date	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
03/14/24	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	2
07/14/23	70	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	155	2
05/26/21	89	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	208	0
04/23/20	593	0	0	0	0	0	4	0	0	0	2	0	0	0	0	0	8	0	0	0	0	0	231	3
01/25/19	256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	204	1
Baseline Data			0	0						0			0	0					0				270	

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







Historical Comments

07/14/23	The fluid is suitable for further service. Resample at the next service interval to monitor.
05/26/21	All parameters meet the expected limits with the exception of the pentane insols. These are high and may be carryover from the previous oil charge, despite the clean and flush that was carried out. Consider some form of filtration if they can be removed safely. If not they need to be monitored for the increase over time Pentane Insolubles levels are severely high.
04/23/20	Several parameters show great concern regarding the condition of the fluid. Iron levels are severely high, and looking at previous reports, has there been some change in service that has potentially introduced this? Acid number is high, insoluble are high and the viscosity is very high and out of range. This translates to the oil being oxidized and with the increase in viscosity for example, to achieve the same effect, you need to put more heat into the system, which will have an accelerated effect on the degradation. Additionally you need to investigate the source of the water in the fluid. Recommend that you look to change the fluid, including a clean and flush as suspect there will be degraded product that needs to be removed at the next convenient opportunity.Iron ppm levels are severe. PQ levels are abnormal. Water contamination levels are severely high. Water contamination levels are severely high.. ppm Water contamination levels are severely high. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is marginally high.
01/25/19	Please send one email to Yutong Gao to inform the current fluid working hours (or months, years). The current fluid has adequate viscosity, flash point and distillation points. It is suitable for the further operation. The elevated Acid Number and Solid content all indicate the fluid has minor oxidation. The Fe level is extremely high, but I think it is because of the contamination during the sampling process, or the Fe particles are accumulating in the fluid through the system opening areas after years operation. Please take one sample in 12 months to monitor the oil conditions.Iron ppm level is high. Solid level is high. Acid Number (AN) is high.