

## **HOT WAX AREA**

## Customer: PTRHTF10102

METALSA INCORPORATED 301 BILL BRYAN BLVD HOPKINSVILLE, KY 42240 USA

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## System Information

System Volume: 4000 gal

Bulk Operating Temp: 240F / 116C

Heating Source:

Blanket:

Fluid: PETRO CANADA PETRO-THERM

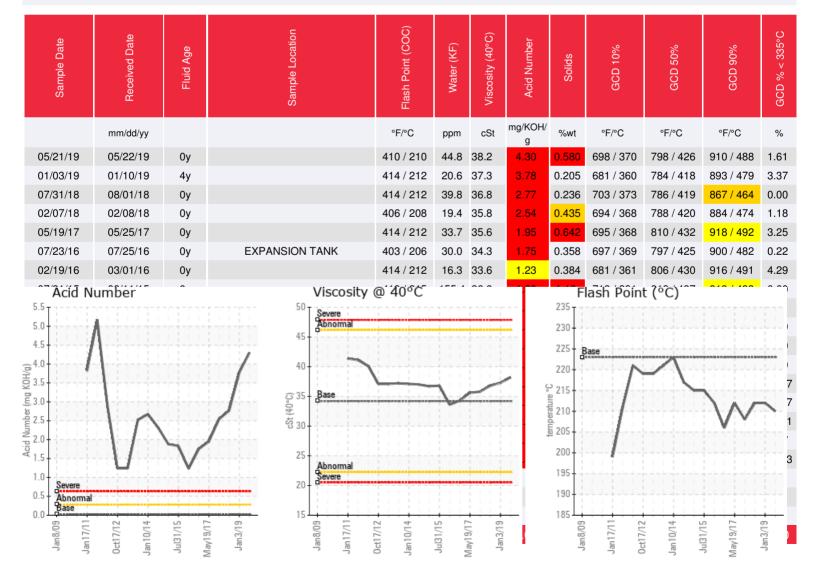
Make:

## Sample Information

Lab No: 02286538 Analyst: Joe Goecke Sample Date: 05/21/19 Received Date: 05/22/19 Completed: 05/27/19

Recommendation: Acid number increased again but not as much as last jump. Oil does not show signs of degradation. Flash point, low boilers, and viscosity are all in very good range. Continue to use and resample at next scheduled interval.

Comments: Pentane Insolubles levels are severely high. Acid Number (AN) is severely high.

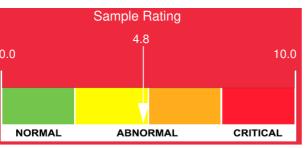




07/23/16

02/19/16

07/31/15



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
05/21/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
07/31/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02/07/18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05/19/17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07/23/16	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
02/19/16	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Eleno entalianay	sis ojes	sul <b>t</b> s (	ab <b>o</b> v	e) ion p	oanols l	oeiŋm	illi <b>o</b> n	(ppgm)	). [ <b>0</b> 0,	000 p	pmı =	1.0%	6] 0	0	0	0	0	0	0	0	6	0	2	3
03/19/15	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	8	0	3	4
01/09/15	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	8	0	3	4
01/10/14	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	11	0	4	4
06/06/13	2	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	11	0	4	5
10/17/12	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	15	0	10	4
10/17/12	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	15	0	10	4
10/10/11	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	5	0	52	0	10	19
04/26/11	2	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	23	0	67	0	26	22
01/17/11	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	73	0	22	25
08/11/09	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	124	0	38	35
									His	torica	l Con	nmen	ts											
01/03/19	Althou	gh this	is high	numbe wear r umbe	netals	do not	show a	ny neg	ample ative e	is in ex ffects f	cellent rom the	condite high a	ion <sub>O</sub> Th acid.Co	ne asid ntinue	nuന്റ്റbe to use	er has cand loc	ontinuo k for a	ed to in ny pos:	crease sible co	over the	ne <sub>1</sub> past nants th	6 sam at coul	ple65 d increa	37 ase
07/31/18	acidic formin	materia g. No	al was	needed	and is a a time	always . Acid	high. <sup>-</sup> Numbe	The rener (AN)	naining is seve	on with prope erely hi	rties of gh. (G0	this loo CD) 90°	ption to bk like i Distil	new oil llation f	. Very Point is	little wa abnorr	ater, gr nally lo	eat flas w.	h point	and vi		and no	some o light e	
02/07/18	Acid number is very high at 2.54, not sure what is causing this but appears to be a constant issue and may be from and environmental contaminant similar to the pentane insoluble being high. Major characteristics of Flash Point, viscosity and low boilers are in very good condition as is metal wear and water. Continue to use product and resample at next regular interval. Pentane Insolubles levels are abnormally high. Acid Number (AN) is severely high.																							
Oil looks like there is some contamination possibly left over from cleaning. Acid number is high as well. could be residual from old oil or other product used.  Flash point, viscosity, and low boilers look very good. Suggest resampling in 6 months to see how contaminants look. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is marginally high.																								

Sample results look ok. Flash point is a little low but ok. Acid number is still better than previous 2 samples but getting higher. Suggest consider change in 6

This current sample looks to be in very good condition for this unit and fluid. No action is needed suitable for further use and resample at next interval. Acid Number is higher than normal but lower than typical for this system. Flash point and viscosity also indicate fluid is in good condition. Acid Number (AN) is

Continue to Monitor fluid as in past. Water level has doubled since last sample, flash, TAN and Viscosity all similar to last sample, although the TAN is high it is

better than last. All other info ok. Would still try and clean system to remove traces of Wax. Pentane Insolubles levels are severely high. Acid Number (AN) is

months or after next sample results. Acid Number (AN) is severely high.

severely high. (GCD) 90% Distillation Point is marginally high.

01/10/14

Sample shows lingering presence of wax contamination. Acid and solids high. Suggest partial exchange or recharge of system to prevent catastrophic failure in future. Pentane Insolubles levels are severely high. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is marginally high.

06/06/13

10/17/12

Calcium and Zinc levels remain low. Acid number has gone back up to 2011 levels indicating either a continued process leak or increased oxidation of the fluid. The additive system also appears to be somewhat depleted. Insoluble solids remains somewhat high at 1.3%. We recommend a partial fluid changeout to improve the fluid condition and replenish additives in the oil to prevent corrosion problems in the system. Pentane Insolubles levels are severely high. Visual appearance is abnormal. Acid Number (AN) is severely high. (GCD) 90% Distillation Point is marginally high.

10/17/12	The oil condition has improved. The viscosity is getting closer to Petro-Therm, the residual metal/element contamination is lower, the GCD 90% data is slowly decreasing towards fresh Petro-Therm's distillation behavior. Overall we are encouraged by the

10/10/11	The oil condition has improved. The viscosity is getting closer to Petro-Therm, the residual metal/element contamination is lower, the GCD 90% data is slowly decreasing towards fresh Petro-Therm's distillation behavior. Overall we are encouraged by the trend of these results, Keep up the efforts and re-sample in 6 months.

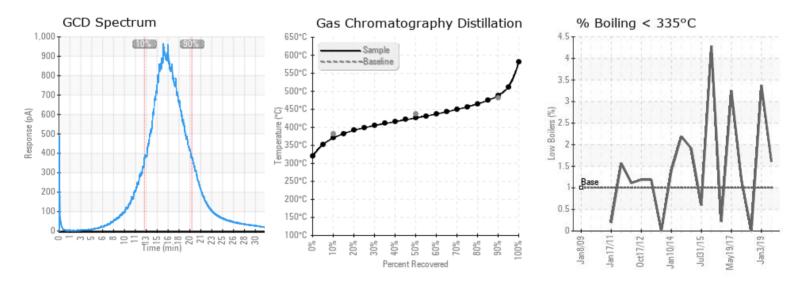
04/26/11			

01/17/11			

08/11/09

05/13/09			





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