



## HEAT TRANSFER

Customer: PTRHTF10216	System Information	Sample Information
INDUS INC 825 GRANITE ST BRAINTREE, MA 02184 USA Attn: Dave Worrick Tel: (781)953-0358 E-Mail: dave.worrick@indusinc.com	System Volume: 300 gal Bulk Operating Temp: 440F / 227C Heating Source: Blanket: Fluid: CITGO HYTHERM 46 Make:	Lab No: 02282229 Analyst: Doug Vrooman Sample Date: 04/17/19 Received Date: 04/30/19 Completed: 05/08/19

Recommendation: With Pentane Insolubles at 2.69 and a 30% increase in Viscosity, it is clear that the Heat Transfer Fluid has thickened, which could result in less efficiency in the Heat Transfer System and more fuel consumption. The High Calcium number of 1582 ppm, could be due to a detergent or cleaner that may have been added to the system. It is not usually part of the Heat Transfer Fluid chemistry. With fluid results as they are and the system only 300 gallons we would advise a system cleaning, flush and fill with fresh Heat Transfer Fluid.

Comments: Pentane Insolubles levels are severely high. Calcium ppm levels are severely 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	%
04/17/19	04/30/19	0y		439 / 226	22.3	59.0	0.10	2.69	743 / 395	833 / 445	939 / 504	0.00
Baseline Data				419 / 215		46	0.01		772 / 411	858 / 459		



