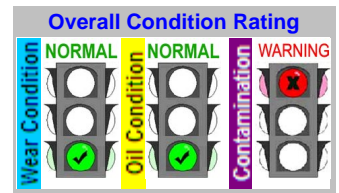


C Code : 280
 U Name : Co., Ltd.
 S
 T
 O Address : Maptaphut Industrial Estate,
 M Muang, Rayong 21150
 E
 R Site :
 Location :
 Test code : FC894

Unit ID : Hyd Main EAF Supply
 Unit Type : Hyd Syst Industrial
 Unit Make : (not given)
 Unit Model : (not given)
 Oil type / Viscosity : HOUGHTO SAFE 620
 Oil System Capacity : 6000 Liters



Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

All wear conditions and wear tests appear in normal working range.
 All oil conditions and oil tests appear in normal working range.
 Particle count indicates that oil cleanliness level is in unacceptable range.
 Recommend check the oil filters for proper operation and suggest using an off-line filtration system to clean up the oil system.
 No oil change recommended at this time, oil appears suitable for further use. Continue routine sampling interval.

Wasan C / Andy Sitton

			Current Sample			Previous Sample			Baseline and Alarm Limit						
Condition History			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Alarm Limit			
			N	N	W	N	N	W	N	N	W	Alarm Limit Matrix -Set Name (Equipment type / oil type)			
			174802			169725			150923			Hyd Syst General HOUGHTO SAFE 620			
Lab ID			945421			936505			927344						
Bottle ID			12-Dec-11			28-Sep-11			29-Dec-10						
Date Sampled			Not Given			Not Given			Not Given						
Oil Hours (Kms)			Not Given			Not Given			Not Given						
Unit Hours (Kms)			Not Given			Not Given			Not Given						
Oil Added (Liters)															
Filters Hours (Kms)															
Wear Condition			RDE fine		RFS coarse		RDE fine		RFS coarse		RDE fine		RFS coarse		
Wear Element	Method	Unit	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	RDE fine	RFS coarse	Reference Oil (RO)	U-Caution	U-Warning	U-Caution	U-Warning
Iron	D-6595	PPM	0.9	1.3	2.2	1.8	1.4	3.1	0	3.1	0	>10	>17	>10	>18
Chromium	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	>1	>2	>1	>2
Lead	D-6595	PPM	0.0	0.0	0.0	0.8	0.0	0.4	0	0.4	0	>5	>9	>6	>10
Copper	D-6595	PPM	7.1	1.8	5.0	2.9	7.2	0.8	0	0.8	0	>43	>75	>30	>55
Tin	D-6595	PPM	18.6	4.7	18.4	1.8	18.2	0.0	10	0.0	10	>30	>40	>15	>30
Aluminum	D-6595	PPM	1.8	1.1	0.8	1.0	1.2	0.9	0	0.9	0	>2	>3	>2	>4
Nickel	D-6595	PPM	0.1	0.0	1.0	0.0	0.4	0.0	0	0.0	0	>1	>2	>2	>3
Silver	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.2	0	0.2	0				
Molybdenum	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.5	0	0.5	0				
Titanium	D-6595	PPM	0.2	0.0	0.7	0.9	0.5	0.0	0	0.0	0				
Oil Condition			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	L-Warning	L-Caution	U-Caution	U-Warning
Viscosity @ 40°C	D-445	cSt	47.3		46.7		47.2				45.0	<38.3	<40.5	>47.3	>49.5
Viscosity @ 100°C	D-445	cSt													
Oxidation	FTIR	Abs													
Nitration	FTIR	Abs													
TAN	D-974	mg KOH/g.													
TBN	D-4739	mg KOH/g.													
Contamination			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	L-Warning	L-Caution	U-Caution	U-Warning
Water	T-H2O Check™	% (Wt.)													
Sodium	D-6595	PPM	16		11		14				0				
Silicon	D-6595	PPM	3.2	1.1	3.2	0.6	5.5	5.8	0	5.8	0	>15	>27	>10	>18
Additive Element			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	L-Warning	L-Caution	U-Caution	U-Warning
Boron	D-6595	PPM	1		0		0				0				
Magnesium	D-6595	PPM	3		2		2				0				
Calcium	D-6595	PPM	1		1		2				0				
Barium	D-6595	PPM	45		65		30				66				
Phosphorus	D-6595	PPM	188		239		173				428				
Zinc	D-6595	PPM	6	2	7	4	7	21	0	21	0				
Additional Test			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	L-Warning	L-Caution	U-Caution	U-Warning
Flash Point	D-3828	°C													
Viscosity Index	D-2270														

Note: Alarm Limits are variable and dependent upon dataset size and to be used as general guideline.
 No Sign or **N** : NORMAL , C or **C** : CAUTION (first level warning limit) , W or **W** : Warning (second level warning limit)
 U-Caution : Upper CAUTION Level L-Caution : Lower CAUTION Level First Level Alarm Alert Limit in Upper Level and/or Lower Level
 U-Warning : Upper WARNING Level L-Warning : Lower WARNING required Level Second Level Alarm Alert Limit in Upper Level and/or Lower Level
 Baseline will be data of either "The new oil" or "Reference oil" or "Oil specification". TNO = The new oil , RO = Reference oil , OS = Oil Specification
 Accuracy of interpretation and recommendation are based on representatives sample and information supplied. No warranty is expressed or implied for this report.

C Customer Code	: 280	U Unit ID	Hyd Main EAF Supply
U Customer Name	: Co., Ltd.	Q	
S		U	
T Address	:	I Unit Type	: Hyd Syst Industrial
O	Muang, Rayong 21150 Thailand	P Unit Make	: Denieli
M Site Name	:	M Unit Model	: Not Given
E Location	:	E Oil Type	: HOUGHTO Safe 620
R Test Code	: FC894	N Lube Capacity	: 4500 Liters
		T	

Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

% Ethylene Glycol, pH and Reserve Alkalinity test appear in normal working range.

Wasan C / Andy Sitton

			Current Sample	Previous Sample			B A S E L I N E	ALARM LIMIT	
Condition History			Water-glycol	Water-glycol	Water-glycol	ALARM LIMIT MATRIX NAME (Equipment / Oil Type)			
Lab ID			174802	169725	150923		Hyd Syst General		
Date Sampled			12-Dec-11	28-Sep-11	29-Dec-10		HOUGHTO SAFE 620		
Bottle ID			945421	936505	927344				
Oil Hours			Not Given	Not Given	Not Given				
Unit Hours			Not Given	Not Given	Not Given				
							Reference Oil	Min.	Max.
Oil Condition (Fluid Condition)									
Color	Visual		red/pink	red/pink	red/pink	red/pink			
Appearance	Visual		Clear	Clear	Clear	Clear			
Glycol	Refract.	%	70.2	70.6	70	65	Min.	65	Max.
pH	D-1287		9.63	9.44	9.26	9.8	Min.	8.5	Max.
Reserve Alkalinity	D-1121	ml	10.70	10.85	8.30	14-16	Min.	9	Max.

Note : Alram Limits are variable and dependent upon dataset and to be used as general guideline
 No sign or **N** : NORMAL , **C** or **CA** : Caution , (first level warning limit) , **A** or **AA** : Warning (Second level warning limit)
 Min : Minimum Max : Maximum
 Baseline will be data either " The new oil " or " Reference oil " or " Oil specification "
 Accuracy of interpretation and recommendation are based on represetatives samples and information supplied. No warranty is expressed or implied for this report

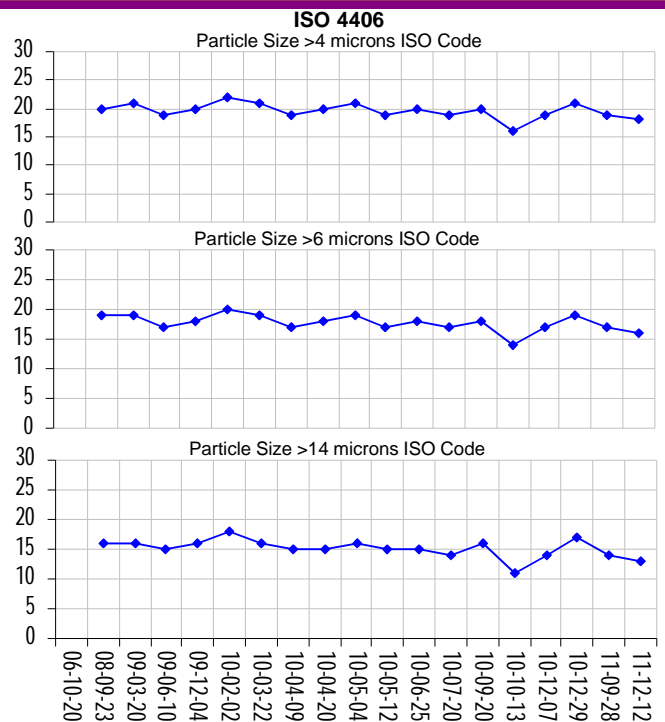
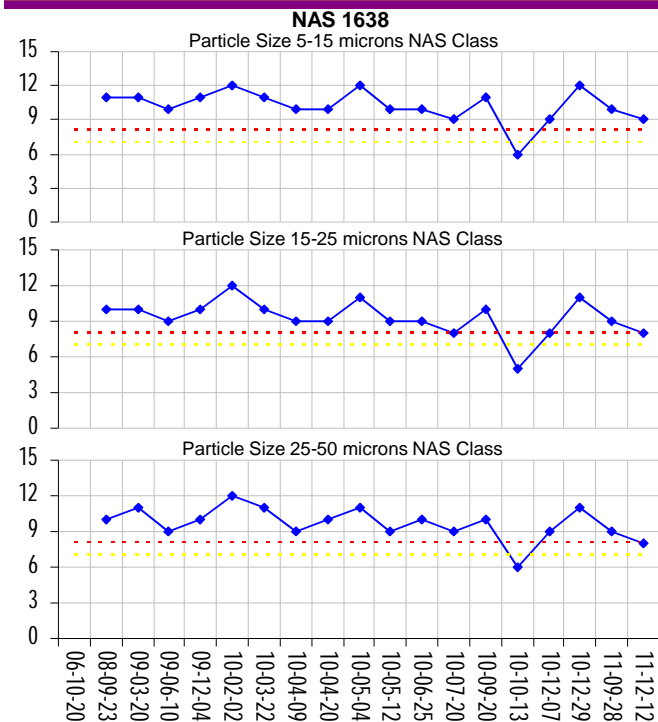
C Code : 280
 U S Name : Co., Ltd.
 T O M E R Address : Maptaphut Industrial Estate,
 Muang, Rayong 21150
 Site :
 Location :
 Test code : FC894

Unit ID : **Hyd Main EAF Supply**
 Unit Type : Hyd Syst Industrial
 Unit Make : (not given)
 Unit Model : (not given)
 Oil type / Viscosity : HOUGHTO SAFE 620
 Oil System Capacity : 6000 Liters

Notes (Finding, Evaluation, Interpretation, Suggestion and Recommendation)

Particle count indicates that oil cleanliness level is in unacceptable range.

Lab ID	Current Sample			Previous Sample			Particle Count				
	Bottle ID	Date Sampled	Oil Hours (Kms)	174802	169725	150923	NAS 1638	ISO 4406			
Oil Added (Liters)	945421	12-Dec-11	Not Given	936505	927344	927344	BASELINE	Alarm Limit			
Filters Hours (Kms)	12-Dec-11	28-Sep-11	Not Given	28-Sep-11	29-Dec-10	29-Dec-10	Hyd Syst General HOUGHTO SAFE 620				
Contamination	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	U-Caution				
Particle Count NAS 1638 System Standard	Not Given	Not Given	Not Given	Not Given	Not Given	Not Given	U-Warning				
Particle Size Range	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class	Class	No. of Particles / 100ml.	Class	No. of Particles / 100ml.	Class
Particle Size 5-15 microns	66,400	9 W	130,800	10 W	547,700	12 W		>16000	7	>32000	8
Particle Size 15-25 microns	6,000	8 W	11,900	9 W	49,800	11 W		>2850	7	>5700	8
Particle Size 25-50 microns	1,800	8 W	3,400	9 W	14,200	11 W		>506	7	>1012	8
Particle Size 50-100 microns	100	7	300	8	1,500	10					
Particle Size >100 microns	<100	6	<100	7	<100	9					
Particle Count ISO 4406:1999 System Standard											
Particle Size Range	No. of Particles / ml.	Class	No. of Particles / ml.	Class	No. of Particles / ml.	Class	Class	No. of Particles / ml.	Class	No. of Particles / ml.	Class
Particle Size > 4 microns	1,991	18	3,924	19	16,430	21					
Particle Size > 6 microns	557	16	1,098	17	4,599	19					
Particle Size > 14 microns	78	13	154	14	645	17					
ISO 4406 Class Rating	18 / 16 / 13		19 / 17 / 14		21 / 19 / 17						



C Code : 280	Unit ID : Hyd Main EAF Supply
U S Name : Co., Ltd.	Unit Type : Hyd Syst Industrial
T O Address : Maplaphut Industrial Estate,	Unit Make : (not given)
M E Muang, Rayong 21150	Unit Model : (not given)
R Site :	Oil type / Viscosity : HOUGHTO SAFE 620
Location :	Oil System Capacity : 6000 Liters
Test code : FC894	

Lab ID : 174802 Date sampled : 12-Dec-11 Hours on Oil : Not Given Hours on Unit : Not Given Bottle ID : 945421

ส่วนที่ 1 : หน้าหลัก

[Section 1 : Main Page](#)

สภาพการสึกหรอและผลทดสอบการสึกหรอทั้งหมด พบว่าอยู่ในช่วงปกติ
คุณสมบัติของน้ำมันและผลทดสอบน้ำมันทั้งหมด พบว่าอยู่ในช่วงปกติ
ผลการตรวจนับอนุภาคสิ่งสกปรกชี้ว่าระดับความสะอาดของน้ำมันยอมรับไม่ได้แล้ว
แนะนำให้ตรวจสอบการทำงานของกรองน้ำมัน เพื่อตรวจสอบหาการทำงานที่ผิดปกติ และแนะนำใช้ระบบกรองภายนอกพร้อมด้วย เพื่อจัดการให้ระบบน้ำมันสะอาด
ขึ้น
แนะนำว่าไม่จำเป็นต้องเปลี่ยนถ่ายน้ำมันในขณะนี้ น้ำมันยังมีสภาพเหมาะสมที่จะใช้งานต่อไป ยังคงเก็บตัวอย่างอย่างต่อเนื่อง

ส่วนที่ 2 : หน้าที่สอง

[Section 2 : Second Page](#)

ผลการตรวจนับอนุภาคสิ่งสกปรกชี้ว่าระดับความสะอาดของน้ำมันยอมรับไม่ได้แล้ว

ส่วนที่ 3 : หน้าของ Analytical Ferrography

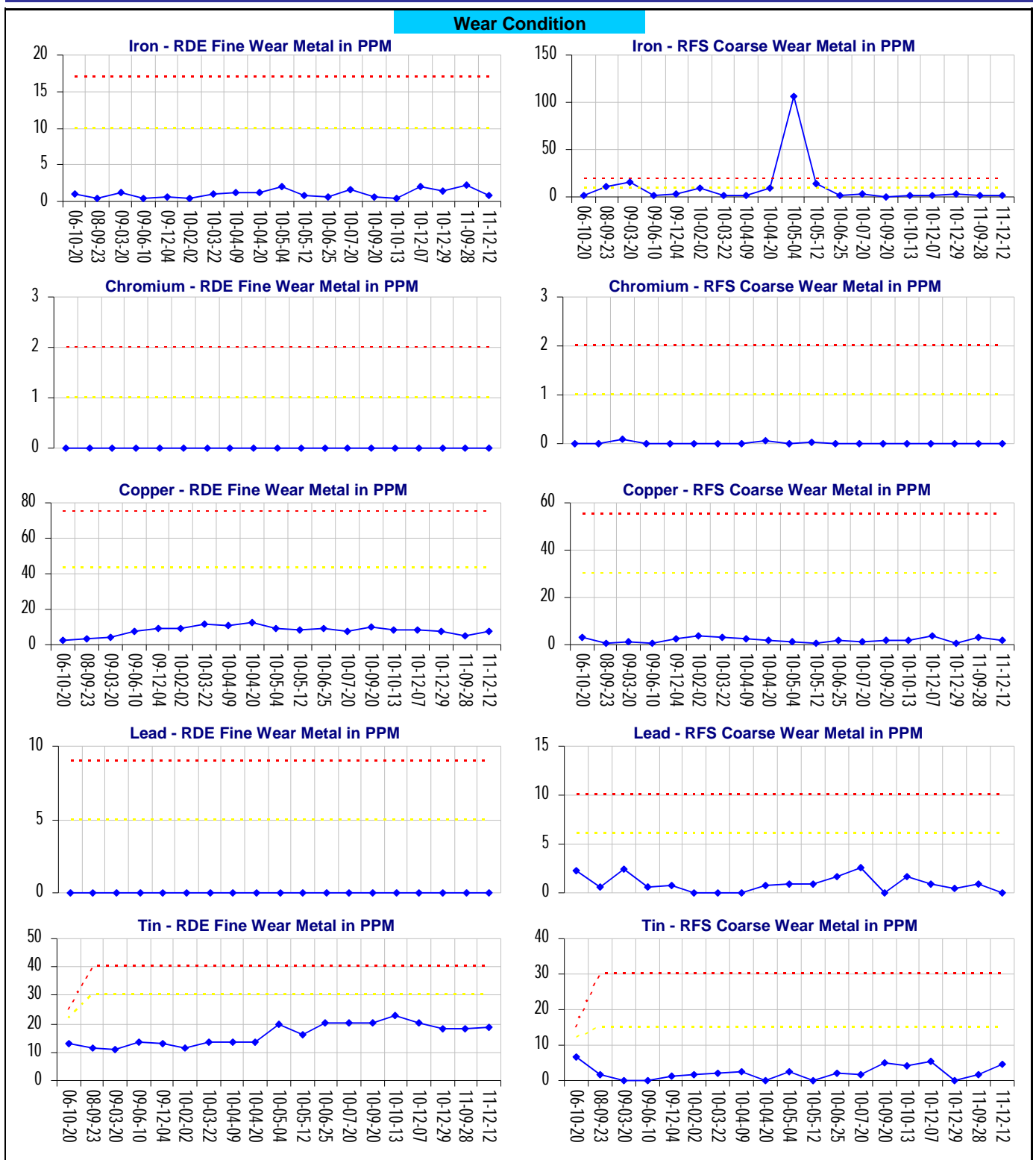
[Section 3 : Analytical Ferrography Page](#)

ส่วนที่ 4 : หน้าของ Gravimetric Page

[Section 4 : Gravimetric Page](#)

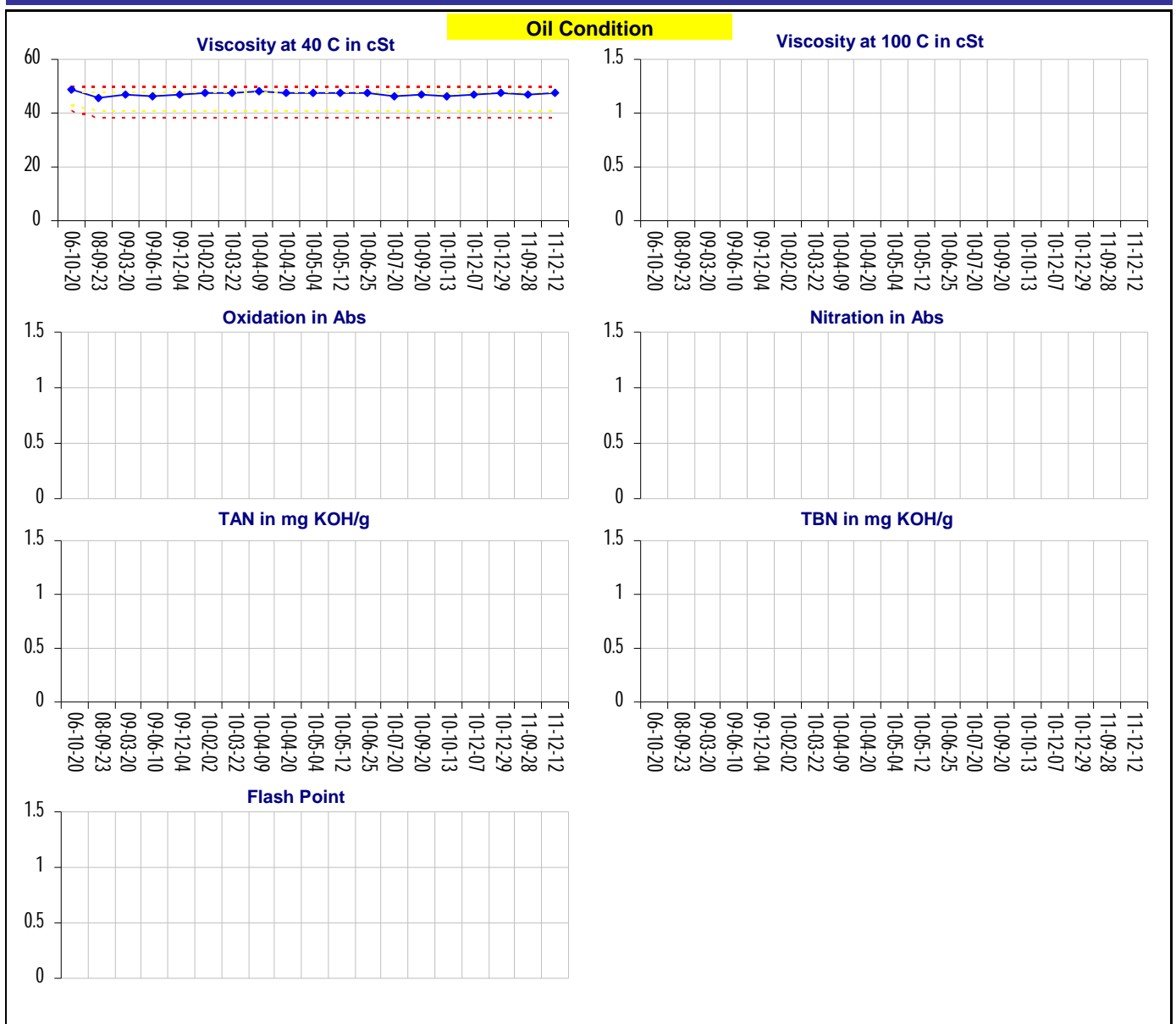
C Code : 280
 U Name : Co., Ltd.
 S Address : Maptaphut Industrial Estate,
 T Muang, Rayong 21150
 O M Site :
 E Location :
 R Test code : FC894

E Unit ID : **Hyd Main EAF Supply**
 O Unit Type : Hyd Syst Industrial
 I Unit Make : (not given)
 P Unit Model : (not given)
 M Oil type / Viscosity : HOUGHTO SAFE 620
 E
 N
 T
 L Oil System Capacity : 6000 Liters



C Code : 280
 U Name : Co., Ltd.
 S Address : Maptaphut Industrial Estate,
 T Muang, Rayong 21150
 O R Site :
 Location :
 Test code : FC894

E Unit ID : Hyd Main EAF Supply
 O Unit Type : Hyd Syst Industrial
 U Unit Make : (not given)
 I Unit Model : (not given)
 P Oil type / Viscosity : HOUGHTO SAFE 620
 L Oil System Capacity : 6000 Liters



C Code : 280
 U Name : Co., Ltd.
 S Address : Maptaphut Industrial Estate,
 T Muang, Rayong 21150
 O R Site :
 Location :
 Test code : FC894

Unit ID : Hyd Main EAF Supply

Unit Type : Hyd Syst Industrial
 Unit Make : (not given)
 Unit Model : (not given)

Oil type / Viscosity : HOUGHTO SAFE 620

Oil System Capacity : 6000 Liters

