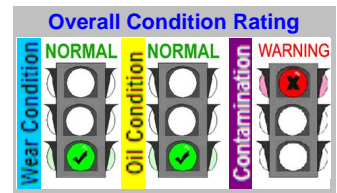


C Code : **28068003**
 U Name :
 T
 O Address : c/o (Thailand) Co., Ltd.
 M 509 Rajavithi Rd., Rajthwee
 E Bangkok 10400
 R Site : Asia Textile
 Location : Samutprakarn
 Test code : 813

Unit ID : **P 13980 Oil Tank**
 Unit Type : Compressor Centrifugal
 Unit Make : COOPER
 Unit Model : TA3000
 Oil type / Viscosity : COOPER TURBO BLEND OIL 46
 Oil System Capacity : 200 Liters



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

All wear conditions and wear tests appear in normal working range.
 Particle count indicates that oil cleanliness level is in unacceptable range.
 Varnish & Sludge Potential Index (VSPi) is in the Warning range and indicates the abnormal presence of sludge, varnish and other insoluble matter in the oil system.
 Recommend check the oil filters for proper operation and suggest using an off-line filtration system to clean up the oil system.
 Recommend test for Anti-Oxidant Additive Depletion by ASTM D 6971 (Test Code ET 914) on next sampling interval.
 Recommend resample in 500 hours from the time this sample was taken, to monitor.

Wasan C / Andy Siltton

			Current Sample			Previous Sample			Baseline and Alarm Limit						
Condition History			Wear	Oil	Cont.	Wear	Oil	Cont.	Wear	Oil	Cont.	Alarm Limit			
Lab ID			N	N	W	N	N	C	N	C	W	Alarm Limit Matrix -Set Name (Equipment type / oil type)			
Bottle ID			149583			133409			115110			Comp Centrifugal Cooper Turbo Blend 46			
Date Sampled			04-Dec-10			27-Mar-10			08-Jun-09						
Oil Hours (Kms)			49552			44156			32629						
Unit Hours (Kms)			49522			44156			32629						
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		Reference Oil (RO)	U-Caution	U-Warning	U-Caution	U-Warning
Iron	D-6595	PPM	0.8	0.1	0.3	1.0	0.1	2.8	0	>3	>5	>8	>12		
Chromium	D-6595	PPM	0.0	0.0	0.0	0.2	0.1	0.1	0	>1	>2	>1	>2		
Lead	D-6595	PPM	0.0	0.7	0.0	0.9	0.0	1.7	0	>1	>2	>4	>8		
Copper	D-6595	PPM	0.0	0.1	0.0	0.2	0.0	0.1	0	>2	>4	>2	>3		
Tin	D-6595	PPM	0.2	0.0	0.0	1.8	0.0	2.3	0	>2	>4	>3	>5		
Aluminum	D-6595	PPM	0.0	0.6	0.0	0.2	0.0	0.0	0	>10	>17	>8	>14		
Nickel	D-6595	PPM	0.0	0.0	0.0	0.2	0.2	0.6	0	>1	>2	>1	>2		
Silver	D-6595	PPM	0.0	0.0	0.0	0.0	0.0	0.0	0						
Molybdenum	D-6595	PPM	0.0	0.0	0.0	0.3	0.2	0.0	0						
Titanium	D-6595	PPM	0.0	0.0	0.0	0.0	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	45.2		45.1		45.0		46.0	<41.1	<43.7	>48.3	>50.6		
Viscosity @ 100°C	D-445	cSt													
Oxidation	FTIR	Abs	10.3		2.2		3.9		8.5			>12.8	>17		
Nitration	FTIR	Abs	8.3		2.2		2.4		8.2			>12.3	>16.4		
TAN	D-974	mg KOH/g	0.12		0.13		0.10		0.06			>0.16	>0.26		
TBN	D-4739	mg KOH/g													
Contamination			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	U-Caution	U-Warning	U-Caution	U-Warning
Water	T-H2O CheckTM	% (Wt.)	0.018		0.010		0.018		0.010			>0.03	>0.05		
Sodium	D-6595	PPM	0		0		0		0						
Silicon	D-6595	PPM	1.0		0.0		1.1		0.2	4.6	0.6	>20	>25	>10	>15
Additive Element			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	U-Caution	U-Warning	U-Caution	U-Warning
Boron	D-6595	PPM	0		0		0		0	0	0				
Magnesium	D-6595	PPM	0		0		0		0	0	0				
Calcium	D-6595	PPM	7		0		0		0	8	0				
Barium	D-6595	PPM	0		0		0		0	0	0				
Phosphorus	D-6595	PPM	14		20		8		21	21	0				
Zinc	D-6595	PPM	1		1		0		1	0	0				
Additional Test			RDE fine		RFS coarse		RDE fine		RFS coarse		RO	U-Caution	U-Warning	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.

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 Location : Samutprakarn
 Test code : 813

Unit ID : **P 13980 Oil Tank**
 Unit Type : Compressor Centrifugal
 Unit Make : COOPER
 Unit Model : TA3000
 Oil type/ Viscosity : COOPER TURBO BLEND OIL 46
 Oil System Capacity : 200 Liters

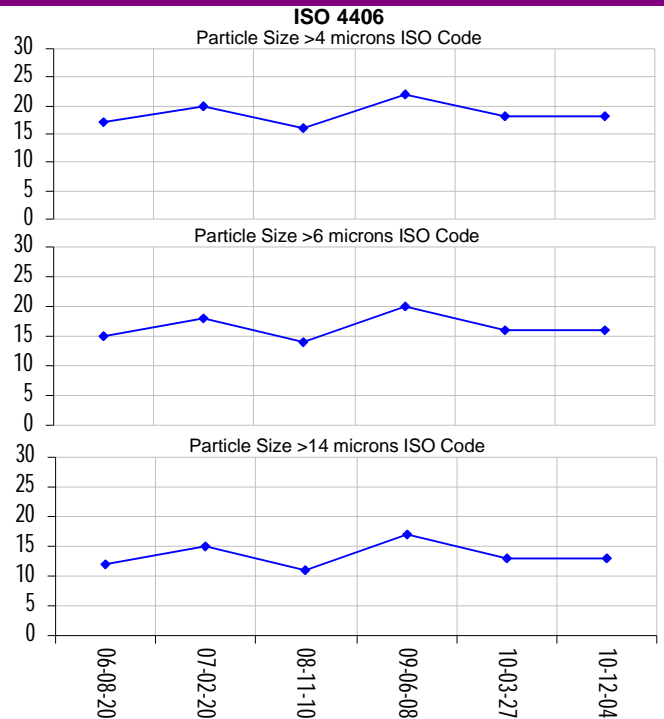
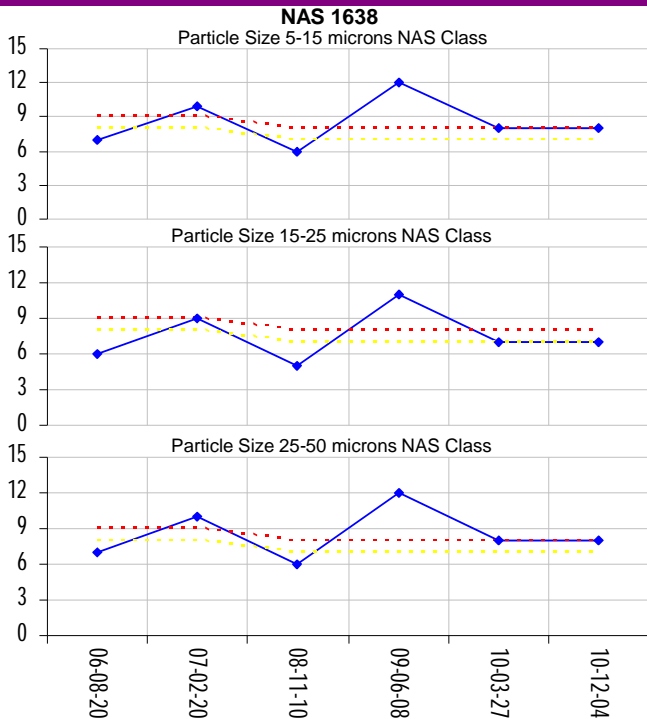
Overall Condition Rating

Wear Condition: NORMAL
 Oil Condition: NORMAL
 Contamination: WARNING

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

Particle count indicates that oil cleanliness level is near to unacceptable range.

Lab ID	Current Sample		Previous Sample				Particle Count				
	Bottle ID	149583	133409	115110	NAS 1638		ISO 4406				
Date Sampled	905996	906180	877631	BASELINE		Alarm Limit					
Oil Hours (Kms)	04-Dec-10	27-Mar-10	08-Jun-09	Comp Centrifugal Cooper Turbo		Blend 46					
Unit Hours (Kms)	49552	44156	32629	U-Caution		U-Warning					
Oil Added (Liters)	49522	44156	32629								
Filters Hours (Kms)											
Contamination											
Particle Count NAS 1638 System Standard											
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	61,200	8 W	46,200	8 W	897,200	12 W		>16000	7	>32000	8
Particle Size 15-25 microns	5,600	7 C	4,200	7 C	81,600	11 W		>2850	7	>5700	8
Particle Size 25-50 microns	1,600	8 W	1,200	8 W	23,200	12 W		>506	7	>1012	8
Particle Size 50-100 microns	100	7	100	7	2400	11					
Particle Size >100 microns	<100	6	<100	5	100	10					
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	1,837	18	1,384	18	26,915	22					
Particle Size > 6 microns	514	16	388	16	7,534	20					
Particle Size > 14 microns	72	13	54	13	1,057	17					
ISO 4406 Class Rating	18/16/13		18/16/13		22/20/17						



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E O I L Unit ID : **P 13980 Oil Tank**
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 E Unit Model : TA3000
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 L Oil System Capacity : 200 Liters

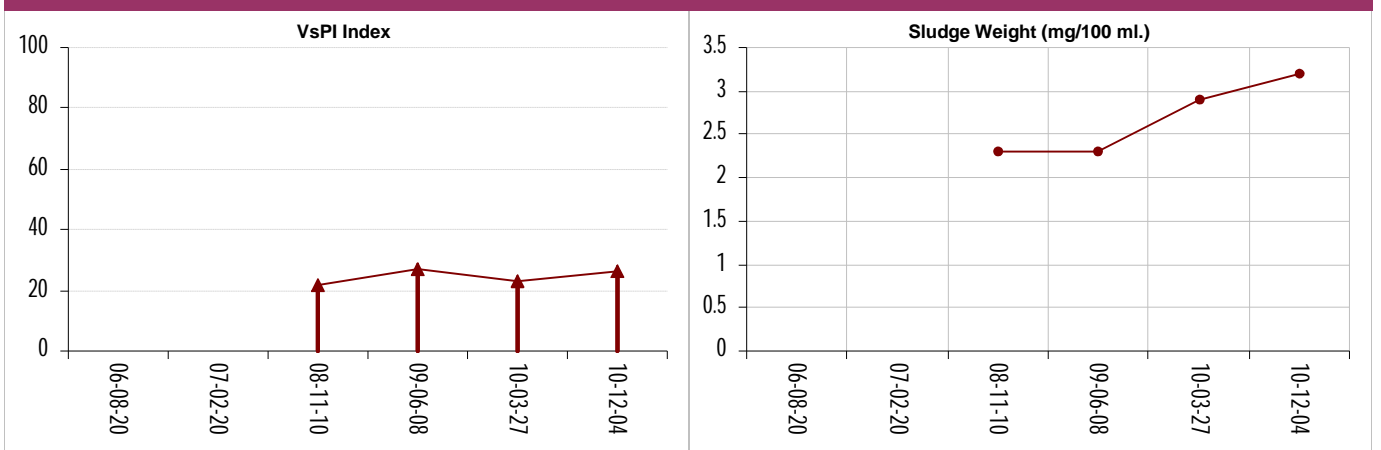
Overall Condition Rating

Wear Condition	NORMAL	NORMAL	WARNING

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

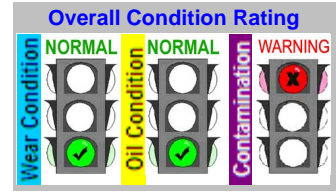
Varnish & Sludge Potential Index (VsPI) is in the Warning range and indicates the abnormal presence of sludge, varnish and other insoluble matter in the oil system.

	Current Sample		Previous Sample		
Lab ID	149583	133409	115110		
Bottle ID	905996	906180	877631		
Date Sampled	04-Dec-10	27-Mar-10	08-Jun-09		
Oil Hours (Kms)	49552	44156	32629		
Unit Hours (Kms)	49522	44156	32629		
Oil Added (Liters)					
Filters Hours (Kms)					
Contamination					
Varnish and Sludge Potential Index™ (VsPI™)					
VPI (Varnish Potential Index) : Soluble Varnish Contamination in Oil					Reference Oil
	VPI View	VPI View	VPI View		VPI View
VPI (Varnish Potential Index) Soluble Varnish Contaminant					
VPI Rating	33.0	34.9	31.6		
SPI (Sludge Potential Index) : or MPC test (Membrane Patch Colorimetric Test) : Insoluble Varnish Contamination in Oil					Reference Oil
	SPI View	SPI View	SPI View		SPI View
SPI (Sludge Potential Index) Insoluble Varnish Contaminant					
SPI Rating	19.7	10.5	22.0		
Sludge Weight	3.2 mg/100 ml	2.9 mg/100 ml	2.3 mg/100 ml		
Alarm Limit Name Comp Centrifugal Cooper Turbo Blend 46					
					Caution Warning
VsPI VsPI = (VPI + SPI) / 2	26.4 W	22.7 C	26.8 W		>15 >25



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Unit Type : Compressor Centrifugal
Unit Make : COOPER
Unit Model : TA3000
Oil type/
I Viscosity : COOPER TURBO BLEND OIL 46
L
Oil System Capacity : 200 Liters



Lab ID : 149583 Date sampled : 04-Dec-10 Hours on Oil : 49552 Hours on Unit : 49522 Bottle ID : 905996

ส่วนที่ 1 : หน้าหลัก

Section 1 : Main Page

สภาพการสึกหรอและผลทดสอบการสึกหรอทั้งหมด พบว่าอยู่ในช่วงปกติ ผลการตรวจนับอนุภาคสิ่งสกปรกชี้ว่าระดับความสะอาดของน้ำมันยอมรับไม่ได้แล้ว ค่าดัชนีการเกิด Varnish อยู่ในระดับอันตราย แสดงว่าเกิดตะกอน คราบยางเหนียว และสารแขวนลอยที่ไม่ละลายในน้ำมันในระบบ แนะนำให้ตรวจสอบการทำงานของกรองน้ำมัน เพื่อตรวจสอบหาการทำงานที่ผิดปกติ และแนะนำให้ระบบกรองภายนอกพร้อมด้วย เพื่อจัดการให้ระบบน้ำมันสะอาดขึ้น แนะนำให้ส่งวิเคราะห์หาปริมาณสารปรุ่ดงแต่งป้องกันการเกิดออกซิแดนท์ ตามมาตรฐาน ASTM D 6971 (รหัสทดสอบ 914) กับตัวอย่างครั้งต่อไป แนะนำเก็บตัวอย่างซ้ำอีกครั้งภายใน 500 ชั่วโมง หลังจากเก็บตัวอย่างครั้งนี้ เพื่อเฝ้าติดตาม

ส่วนที่ 2 : หน้าที่สอง

Section 2 : Second Page

ผลการตรวจนับอนุภาคสิ่งสกปรกชี้ว่าระดับความสะอาดของน้ำมันใกล้จะยอมรับไม่ได้แล้ว

ส่วนที่ 3 : หน้าของ Analytical Ferrography

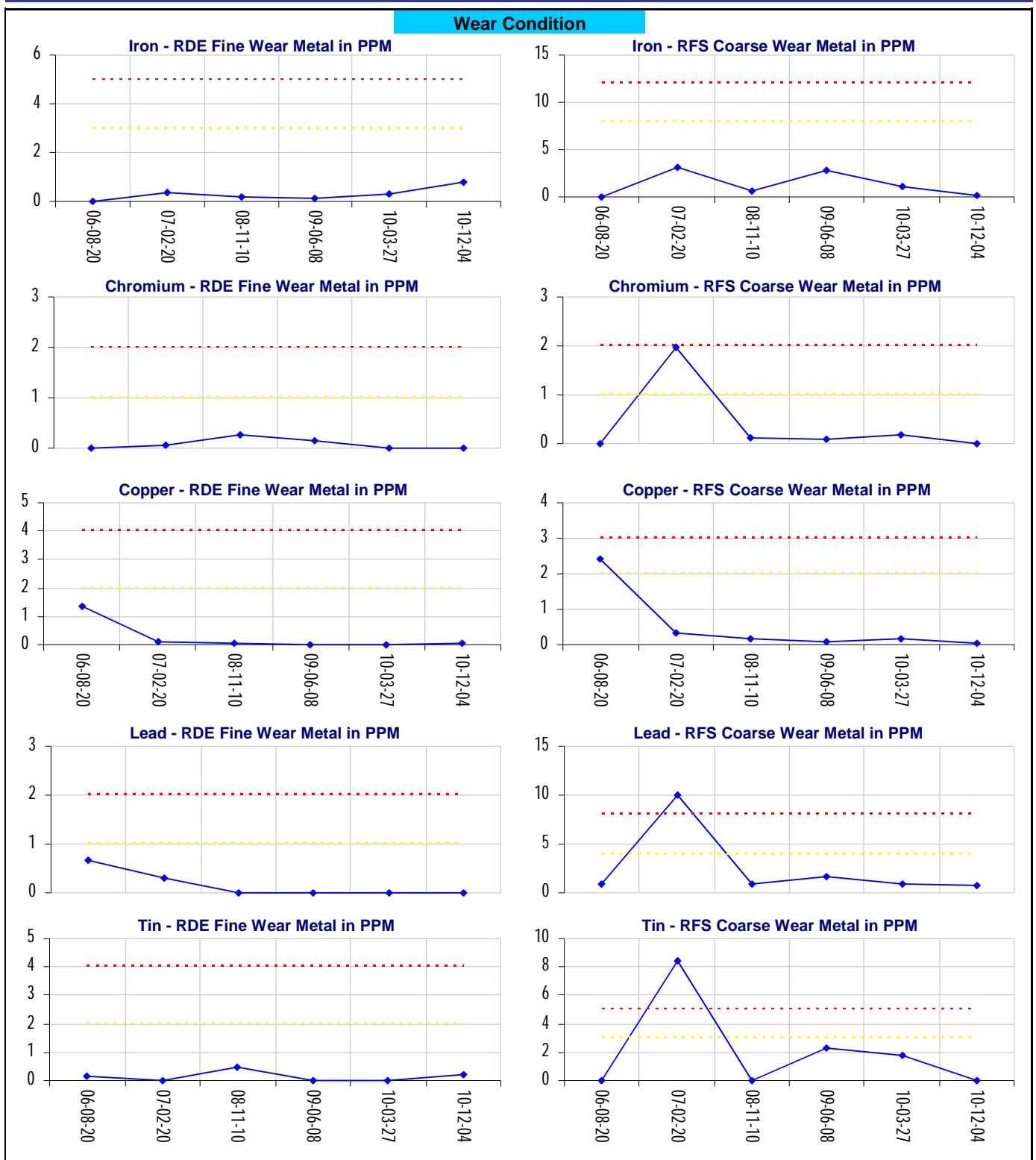
Section 3 : Analytical Ferrography Page

ส่วนที่ 4 : หน้าของ Gravimetric Page

Section 4 : Gravimetric Page

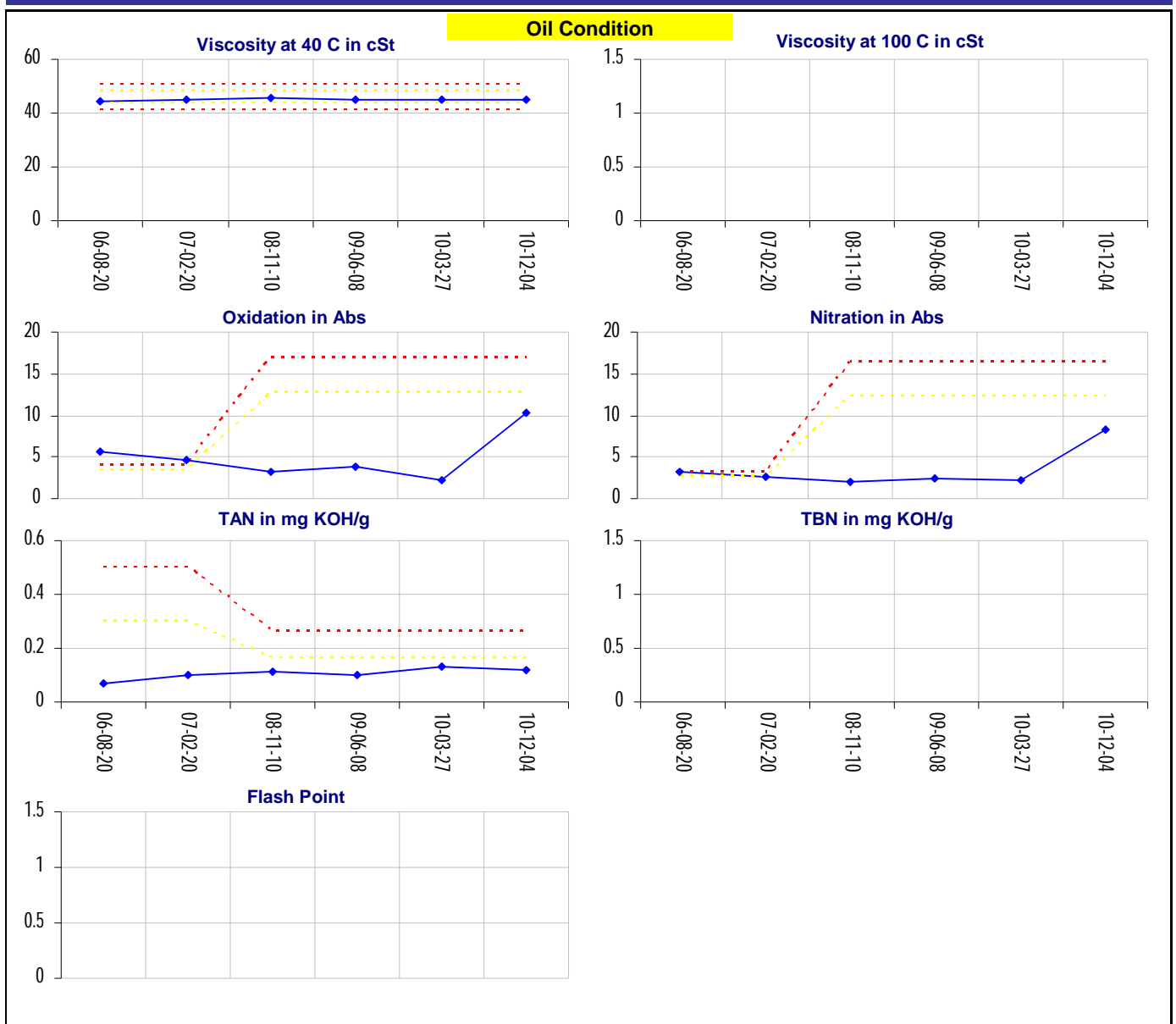
C Code : 28068003
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