

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Machine Id

KAESER SFC37 8302951 (S/N 1041)

Component Compressor Fluid

KAESER SIGMA (OEM) S-460 (--- GAL)

Recommendation

No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of particulates present in the oil.

Fluid Condition

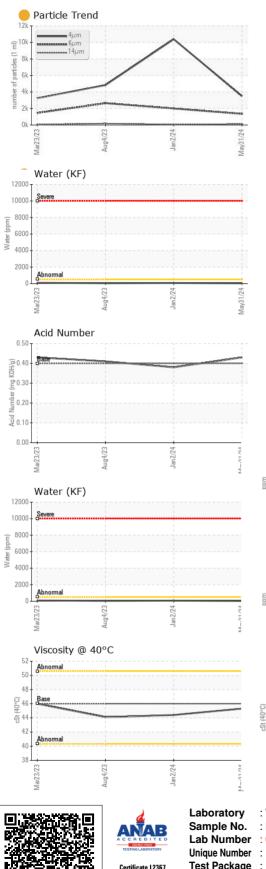
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sample Date Client Info 31 May 2024 02 Jan 2024 04 Aug 2023 Machine Age hrs Client Info 14197 10837 7245 Oil Age hrs Client Info 3000 0 3214 Oil Changed Client Info Changed N/A Changed ATTENTION ATTENTION ABNORMAL WEAR METALS method Imitbase current history1 history1 history2 Iron ppm ASTM 05155m >50 0 0 0 0 Nickel ppm ASTM 05155m >3 0 0 0 0 Burninum ppm ASTM 05155m >10 0 0 0 0 Lead ppm ASTM 05155m >10 0 0 0 0 0 Vanadium ppm ASTM 05155m >10 0 0 0 0 Astm 05155m 0 0 0 0 0 0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age Dil Age Di	Sample Number		Client Info		KCPA018357	KCPA011274	KCP55014
Oil Age hrs Client Info 3000 0 3214 Oil Changed Client Info Changed N/A Changed Sample Status method imil/base current history1 history2 Iron ppm ASTM D5185m >50 0 0 <1 Chromium ppm ASTM D5185m >30 0 0 0 Nickel ppm ASTM D5185m >30 0 0 0 Aluminum ppm ASTM D5185m >20 0 0 0 Aluminum ppm ASTM D5185m >10 <1 2 3 Lead ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m 10 0 0 0 ASTM D5185m 90 0 0 0 0 0 ASTM D5185m 0 0 0 0 0 Maneaium ppm <th>Sample Date</th> <th></th> <th>Client Info</th> <th></th> <th>31 May 2024</th> <th>02 Jan 2024</th> <th>04 Aug 2023</th>	Sample Date		Client Info		31 May 2024	02 Jan 2024	04 Aug 2023
Oli Changed Sample Status Client Info Changed ATTENTION NA Changed ABNORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >50 0 0 <1 Chromium ppm ASTM D5185m >50 0 0 <1 Nickel ppm ASTM D5185m >33 0 0 <1 Silver ppm ASTM D5185m >33 0 0 0 Auminum ppm ASTM D5185m >10 <1 2 3 Lead ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m >10 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0	Machine Age	hrs	Client Info		14197	10837	7245
Sample Status ATTENTION ATTENTION ABTORMAL WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >50 0 0 <1 Chromium ppm ASTM D5185m >3 0 0 0 Nickel ppm ASTM D5185m >3 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 <1 2 3 Lead ppm ASTM D5185m >50 3 4 8 Tin ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m 0 0 0 0 ADDITVES method Imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium	Oil Age	hrs	Client Info		3000	0	3214
WEAR METALS method limit/base current history1 history2 Iron ppm ASTN D5185m >50 0 0 <1 Chromium ppm ASTN D5185m >3 0 0 0 Nickel ppm ASTN D5185m >3 0 0 <1 Silver ppm ASTN D5185m >2 0 0 0 Auminum ppm ASTN D5185m >10 <1 2 3 Lead ppm ASTN D5185m >10 0 0 0 Cadmium ppm ASTN D5185m >10 0 0 0 Vanadium ppm ASTN D5185m >10 0 0 0 ASTN D5185m >10 0 0 0 0 0 Manganese ppm ASTN D5185m 0 0 1 1 Manganese ppm ASTN D5185m 0 0 1 1 <th>Oil Changed</th> <th></th> <th>Client Info</th> <th></th> <th>Changed</th> <th>N/A</th> <th>Changed</th>	Oil Changed		Client Info		Changed	N/A	Changed
Iron ppm ASTM D5185m >50 0 0 <1	Sample Status				ATTENTION	ATTENTION	ABNORMAL
Chromium ppm ASTM D5185m >10 0 0 0 Nickel ppm ASTM D5185m >3 0 0 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 <1 2 3 Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 0 Vanadium ppm ASTM D5185m >10 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 0 Regresium ppm	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >3 0 0 .<1	Iron	ppm	ASTM D5185m	>50	0	0	<1
Titanium ppm ASTM D5185m >3 0 0 <1	Chromium	ppm	ASTM D5185m	>10	0	0	0
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >10 <1 2 3 Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 ADDITIVES method imit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 <1 <1 11 Zinc ppm ASTM D5185m 0 <4 11 11 Zinc ppm ASTM D5185m 22 <1 0 <1 <th>Nickel</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>3</th> <th>0</th> <th>0</th> <th>0</th>	Nickel	ppm	ASTM D5185m	>3	0	0	0
Aluminum ppm ASTM D5185m >10 <1	Titanium	ppm	ASTM D5185m	>3	0	0	<1
Lead ppm ASTM D5185m >10 0 0 0 Copper ppm ASTM D5185m >50 3 4 8 Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 90 0 0 0 Maganese ppm ASTM D5185m 90 0 0 0 Maganese ppm ASTM D5185m 90 0 0 0 Calcium ppm ASTM D5185m 90 0 0 0 Sulfur ppm ASTM D5185m 2 0 0 0 Sulfur ppm ASTM D5185m 20367 17354 19680	Silver	ppm	ASTM D5185m	>2	0	0	0
Copper ppm ASTM D5185m >50 3 4 8 Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 2 0 0 0 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 <th>Aluminum</th> <th>ppm</th> <th>ASTM D5185m</th> <th>>10</th> <th><1</th> <th>2</th> <th>3</th>	Aluminum	ppm	ASTM D5185m	>10	<1	2	3
Copper ppm ASTM D5185m >50 3 4 8 Tin ppm ASTM D5185m >10 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 0 0 Calcium ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 2 0 0 0 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 <th>Lead</th> <th></th> <th>ASTM D5185m</th> <th>>10</th> <th>0</th> <th>0</th> <th>0</th>	Lead		ASTM D5185m	>10	0	0	0
Vanadium ppm ASTM D5185m c1 0 <1	Copper	ppm	ASTM D5185m	>50	3	4	8
Vanadium ppm ASTM D5185m <1	••		ASTM D5185m	>10	0	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 90 0 0 0 0 Molybdenum ppm ASTM D5185m 90 0 0 0 0 Magnesium ppm ASTM D5185m 90 0 0 4 1 Calcium ppm ASTM D5185m 90 0 0 0 0 Phosphorus ppm ASTM D5185m 90 0 0 0 0 Sulfur ppm ASTM D5185m 0 4 11 1 1 0 <1 2 0 0 0 13 13 13 13 13 13 16600 100 13 13 10 1 14 11 1 1 1 1 1 1 1 1 1<	Vanadium	ppm	ASTM D5185m		<1	0	<1
Boron ppm ASTM D5185m 0 0 0 Barium ppm ASTM D5185m 90 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Marganese ppm ASTM D5185m 90 0 0 4 Magnesium ppm ASTM D5185m 90 0 0 0 Calcium ppm ASTM D5185m 90 0 4 11 Zinc ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 0 4 11 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 0 <1 2 Potassium p	Cadmium		ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 90 0 0 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 Maganese ppm ASTM D5185m 90 0 0 0 Magnesium ppm ASTM D5185m 90 0 0 0 4 Calcium ppm ASTM D5185m 2 0 0 0 0 Phosphorus ppm ASTM D5185m 2 0 0 0 11 Zinc ppm ASTM D5185m 6 30 13 13 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 0 <1 2 Potassium ppm ASTM D5185m >20 0 <1 2 Water % ASTM D6304 >0.	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 Manganese ppm ASTM D5185m 90 0 0 4 Magnesium ppm ASTM D5185m 90 0 0 0 Calcium ppm ASTM D5185m 2 0 0 0 Phosphorus ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method imit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 0 <1 2 Potassium ppm ASTM D5185m >20 0 <1 2 Water % ASTM D6304 >0.05 0.004 0.007 0.005 particles	Boron	ppm	ASTM D5185m		0	0	0
Marganese ppm ASTM D5185m 0 <1	Barium	ppm	ASTM D5185m	90	0	0	0
Magnesium ppm ASTM D5185m 90 0 0 4 Calcium ppm ASTM D5185m 2 0 0 0 Phosphorus ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 6 30 13 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 0 <1 2 Vater % ASTM D6304 >0.05 0.004 0.007 0.005 pm Water ppm ASTM D7647 3496 10390 4830 Particles >4µm ASTM D7647 >1300 1349 1998 2641 Particles >51µm	Molybdenum	ppm	ASTM D5185m		0	0	0
Calcium ppm ASTM D5185m 2 0 0 0 Phosphorus ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 6 30 13 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 0 <1 2 Vater % ASTM D5185m >20 0 <1 2 Water ppm ASTM D5185m >20 0 <1 2 Water ppm ASTM D5185m >20 0 <11 2 Particles >4µm ASTM D6304 >500 41 74 50.8 2641	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus ppm ASTM D5185m 0 4 11 Zinc ppm ASTM D5185m 6 30 13 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Magnesium	ppm	ASTM D5185m	90	0	0	4
Zinc ppm ASTM D5185m 6 30 13 Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1	Calcium	ppm	ASTM D5185m	2	0	0	0
Sulfur ppm ASTM D5185m 20367 17354 19680 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >25 <1 0 <1 Potassium ppm ASTM D5185m >20 0 <1 2 Water % ASTM D6304 >0.05 0.004 0.007 0.005 ppm Water ppm ASTM D6304 >500 41 74 50.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >1300 1349 1998 2641 Particles >6µm ASTM D7647 >80 121 53 180 Particles >1µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >3 0 0 0	Phosphorus	ppm	ASTM D5185m		0	4	11
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 <1 0 <1 Sodium ppm ASTM D5185m >20 0 <1 2 Potassium ppm ASTM D5185m >20 0 <1 2 Water % ASTM D50804 >0.05 0.004 0.007 0.005 ppm Water ppm ASTM D6304 >500 41 74 50.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3496 10390 4830 Particles >6µm ASTM D7647 >1300 1349 1998 2641 Particles >1µm ASTM D7647 >20 27 16 13 Particles >21µm ASTM D7647 >3 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0	Zinc	ppm	ASTM D5185m		6	30	13
Silicon ppm ASTM D5185m >25 <1	Sulfur	ppm	ASTM D5185m		20367	17354	19680
Sodium ppm ASTM D5185m 2 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 <1	Silicon	ppm	ASTM D5185m	>25	<1	0	<1
Water % ASTM D6304 >0.05 0.004 0.007 0.005 ppm Water ppm ASTM D6304 >500 41 74 50.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3496 10390 4830 Particles >6µm ASTM D7647 >1300 1349 1998 2641 Particles >14µm ASTM D7647 >20 27 16 13 Particles >21µm ASTM D7647 >4 1 0 0 0 Particles >38µm ASTM D7647 >4 1 1 0 0 0 0 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		2	<1	2
ppm Water ppm ASTM D6304 >500 41 74 50.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3496 10390 4830 Particles >6µm ASTM D7647 >1300 1349 1998 ≥2641 Particles >14µm ASTM D7647 >80 121 53 ▲ 180 Particles >21µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >4 1 0	Potassium	ppm	ASTM D5185m	>20	0	<1	2
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 3496 10390 4830 Particles >6µm ASTM D7647 >1300 1349 1998 2641 Particles >14µm ASTM D7647 >80 121 53 180 Particles >21µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >4 1 1 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>0.05	0.004	0.007	0.005
Particles >4µm ASTM D7647 3496 10390 4830 Particles >6µm ASTM D7647 >1300 1349 1998 2641 Particles >14µm ASTM D7647 >80 121 53 180 Particles >21µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >4 1 1 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15	ppm Water	ppm	ASTM D6304	>500	41	74	50.8
Particles >6µm ASTM D7647 >1300 1349 1998 2641 Particles >14µm ASTM D7647 >80 121 53 180 Particles >21µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >4 1 1 0 Particles >38µm ASTM D7647 >3 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >80 121 53 ▲ 180 Particles >21µm ASTM D7647 >20 27 16 13 Particles >38µm ASTM D7647 >4 1 1 0 Particles >38µm ASTM D7647 >3 0 0 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm				3496	10390	4830
Particles >21μm ASTM D7647 >20 27 16 13 Particles >38μm ASTM D7647 >4 1 1 0 Particles >37μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>1300	<mark> </mark> 1349	1998	A 2641
Particles >38µm ASTM D7647 >4 1 1 0 Particles >71µm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>80	e 121	53	1 80
Particles >71μm ASTM D7647 >3 0 0 0 Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>20	<mark> </mark> 27	16	13
Oil Cleanliness ISO 4406 (c) >17/13 18/14 18/13 19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>4		1	0
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	0	0	0
	Oil Cleanliness		ISO 4406 (c)	>17/13	18/14	18/13	1 9/15
Acid Number (AN) mg KOH/g ASTM D8045 0.4 0.43 0.38 0.41	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.4	0.43	0.38	0.41

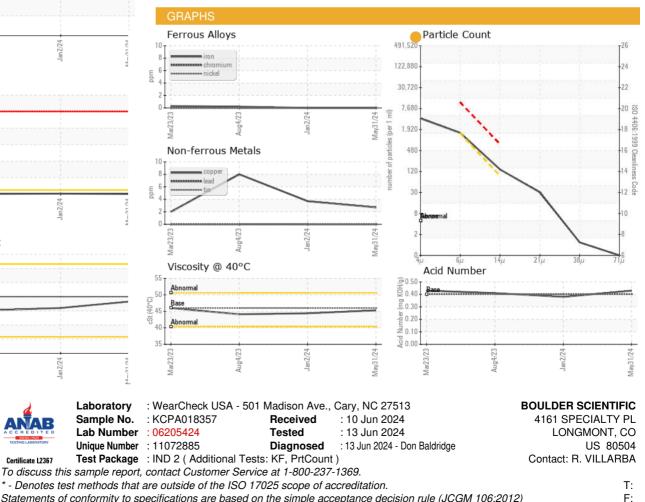
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OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.05	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46	45.3	44.4	44.1
SAMPLE IMAGES	5	method	limit/base	current	history1	history2
SAMPLE IMAGES	3	method	limit/base	current	history1	history2



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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