

OIL ANALYSIS REPORT

Sample Rating Trend



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Calcium ppm ASTM D5185m 0 0 0 2 0 Phosphorus ppm ASTM D5185m 1800 994 1037 1034 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 136 196 423 Particles >4µm ASTM D7647			Jan2021	Jun2021 Dec2021	Jun2022 Dec2022 May2023	Nov2023	
Sample Date Client Info 29 Nov 2023 18 Aug 2023 22 May 202 Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A WEAR METALS method Imit/base current history1 history1 Iron ppm ASTM 05185m >5 <1 0 0 Chromium ppm ASTM 05185m >3 <1 0 0 Silver ppm ASTM 05185m >3 0 0 0 0 Lead ppm ASTM 05185m >12 0 0 1 1 Vanadium ppm ASTM 05185m 0 0 0 0 0 Kardinum ppm ASTM 05185m 0 0 0 0	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Age hrs Client Info N/A N/A N/A Sample Status Imit/base current history1 history2 Iron ppm ASTM D5185m >5 0 0 0 Nickel ppm ASTM D5185m >5 0 0 0 Silver ppm ASTM D5185m >3 1 0 0 Copper ppm ASTM D5185m >3 0 0 0 Copper ppm ASTM D5185m >3 0 0 0 Copper ppm ASTM D5185m >3 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 0 ASTM D5185m 0 0 0 0 0 0 0 0 <td< td=""><td>Sample Number</td><td></td><td>Client Info</td><td></td><th>USPM31959</th><td>USPM29403</td><td>USPM2841</td></td<>	Sample Number		Client Info		USPM31959	USPM29403	USPM2841
Oil Age Inrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185n >90 0 0 0 Othormium ppm ASTM D5185n >5 0 0 0 Othormium ppm ASTM D5185n >3 <1	Sample Date		Client Info		29 Nov 2023	18 Aug 2023	22 May 202
Oil Changed Sample Status Client Info N/A N/A N/A N/A WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >90 0 0 0 Chromium ppm ASTM 05185m >5 <1	Machine Age	hrs	Client Info		0	0	0
Sample Status Intervention NORMAL NORMAL NORMAL NORMAL WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >5 <1	Oil Age	hrs	Client Info		0	0	0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >90 0 0 0 Othromium ppm ASTM 05185m >5 0 0 -1 Nickel ppm ASTM 05185m >3 <1	Oil Changed		Client Info		N/A	N/A	N/A
Iron ppm ASTM D5185m >90 0 0 0 Chromium ppm ASTM D5185m >5 0 0 <1	Sample Status				NORMAL	NORMAL	NORMAL
Dromium ppm ASTM D5185m >5 •1 0 <1 Nickel ppm ASTM D5185m >5 0 0 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >5 0 0 <1 Titanium ppm ASTM D5185m >3 <1	Iron	ppm	ASTM D5185m	>90	0	0	0
Titanium ppm ASTM D5185m >3 <1 0 0 Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >7 0 0 0 Lead ppm ASTM D5185m >12 0 0 1 Copper ppm ASTM D5185m >30 0 0 0 Tin ppm ASTM D5185m >9 0 <1	Chromium	ppm	ASTM D5185m	>5	<1	0	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >7 0 0 0 Lead ppm ASTM D5185m >12 0 0 1 Copper ppm ASTM D5185m >30 0 0 0 1 Vanadium ppm ASTM D5185m >30 0 0 0 1 1 Vanadium ppm ASTM D5185m 0 0 0 0 1 1 Cadmium ppm ASTM D5185m 0 0 0 0 0 Boron ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 2 0 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Nickel	ppm	ASTM D5185m	>5	0	0	<1
Atuminum ppm ASTM D5185m >7 0 0 0 Lead ppm ASTM D5185m >12 0 0 1 Copper ppm ASTM D5185m >30 0 0 0 Tin ppm ASTM D5185m >9 0 <1	Titanium	ppm	ASTM D5185m	>3	<1	0	0
Lead ppm ASTM D5185m >12 0 0 1 Copper ppm ASTM D5185m >30 0 0 0 0 Tin ppm ASTM D5185m >9 0 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Lead ppm ASTM D5185m >12 0 0 1 Copper ppm ASTM D5185m >30 0 0 0 0 Tin ppm ASTM D5185m >9 0 <1	Aluminum	ppm	ASTM D5185m	>7	0	0	0
Tin ppm ASTM D5185m >0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1	Lead	ppm	ASTM D5185m	>12	0	0	1
Tin ppm ASTM D5185m >9 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 <1	Copper		ASTM D5185m	>30	0	0	0
Vanadium ppm ASTM D5185m 0 0 <1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Malyddenum ppm ASTM D5185m 0 0 0 0 Magnese ppm ASTM D5185m 0 0 2 0 Magnesium ppm ASTM D5185m 0 0 2 0 Phosphorus ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 Sulfur ppm ASTM D5185m >60 27 19 16					0	<1	<1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 0 Malybdenum ppm ASTM D5185m 0 0 0 0 0 Magnesium ppm ASTM D5185m 0 0 2 0 Astm D5185m 0 0 0 2 0 2 0 Magnesium ppm ASTM D5185m 0 0 2 0 2 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0	Vanadium		ASTM D5185m		-	0	<1
Boron ppm ASTM D5185m 0 0 0 0 0 Barium ppm ASTM D5185m 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 -<1					-		
Barium ppm ASTM D5185m 0 0 0 0 0 Molybdenum ppm ASTM D5185m 0 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 0 0 0 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm	ASTM D5185m	0	0	0	0
Manganese ppm ASTM D5185m 0 0 <1 Magnesium ppm ASTM D5185m 0 0 <1	Barium	ppm	ASTM D5185m	0	0	0	0
Magnesium ppm ASTM D5185m 0 0 <1 <1 Calcium ppm ASTM D5185m 0 0 2 0 Phosphorus ppm ASTM D5185m 0 0 2 0 Phosphorus ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 Solicon ppm ASTM D5185m 0 0 0 0 0 Sodium ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D5304 >1 0.027 0.036 0.050 pmWater pm ASTM D7647 >1000 272 367.0 507.8 FLUID CLEANLINES Method <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>0</th> <td>0</td> <td>0</td>	Molybdenum	ppm	ASTM D5185m	0	0	0	0
Calcium ppm ASTM D5185m 0 0 0 2 0 Phosphorus ppm ASTM D5185m 1800 994 1037 1034 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D5185m >20 1 0.036 0.050 ppm MSTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 1 0.027 0.036 0.050 ppm MSTM D5185m	Manganese	ppm	ASTM D5185m		0	0	<1
Calcium ppm ASTM D5185m 0 0 0 2 0 Phosphorus ppm ASTM D5185m 1800 994 1037 1034 Zinc ppm ASTM D5185m 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D5185m >20 1 0.036 0.050 ppm MSTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 1 0.027 0.036 0.050 ppm MSTM D5185m	Magnesium	ppm	ASTM D5185m	0	0	<1	<1
Zinc ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0		ppm	ASTM D5185m	0	0	2	0
Zinc ppm ASTM D5185m 0 0 0 0 0 0 Sulfur ppm ASTM D5185m 0 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >21µm <td< td=""><td>Phosphorus</td><td>ppm</td><td>ASTM D5185m</td><td>1800</td><th>994</th><td>1037</td><td>1034</td></td<>	Phosphorus	ppm	ASTM D5185m	1800	994	1037	1034
Sulfur ppm ASTM D5185m 0 0 0 0 0 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m >20 1 0 2 Water % ASTM D5185m >20 1 0.027 0.036 0.050 ppm ASTM D5185m >20 1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D7647 >1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >21µm ASTM D			ASTM D5185m	0	0	0	0
Silicon ppm ASTM D5185m >60 27 19 16 Sodium ppm ASTM D5185m 0 0 0 0 Potassium ppm ASTM D5185m >20 1 0 2 Water % ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >6µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/1	Sulfur		ASTM D5185m	0	0	0	0
Sodium ppm ASTM D5185m 0 0 0 Potassium ppm ASTM D5185m >20 1 0 2 Water % ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Particles >71µm ASTM D7647 >10 0 0 0	CONTAMINANTS		method	limit/base	current	history1	history2
Sodium ppm ASTM D5185m 0 0 0 0 Potassium ppm ASTM D5185m >20 1 0 2 Water % ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1 0.027 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >6µm ASTM D7647 >640 11 15 33 Particles >14µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 <td>Silicon</td> <td>ppm</td> <td>ASTM D5185m</td> <td>>60</td> <th>27</th> <td>19</td> <td>16</td>	Silicon	ppm	ASTM D5185m	>60	27	19	16
Water % ASTM D6304 >.1 0.027 0.036 0.050 ppm Water ppm ASTM D6304 >.1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >6µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	Sodium	ppm	ASTM D5185m		0	0	0
ppm Water ppm ASTM D6304 >1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	1	0	2
ppm Water ppm ASTM D6304 >1000 272 367.0 507.8 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >10000 470 1338 2060 Particles >6µm ASTM D7647 >2500 136 196 423 Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >10 0 0 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>.1	0.027	0.036	0.050
Particles >4μm ASTM D7647 >10000 470 1338 2060 Particles >6μm ASTM D7647 >2500 136 196 423 Particles >14μm ASTM D7647 >640 11 15 33 Particles >21μm ASTM D7647 >160 3 4 9 Particles >21μm ASTM D7647 >160 3 4 9 Particles >38μm ASTM D7647 >40 0 1 0 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	ppm Water				272		507.8
Particles >6µm ASTM D7647 >2500 136 196 423 Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >40 0 1 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >6µm ASTM D7647 >2500 136 196 423 Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >40 0 1 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647	>10000	470	1338	2060
Particles >14µm ASTM D7647 >640 11 15 33 Particles >21µm ASTM D7647 >160 3 4 9 Particles >21µm ASTM D7647 >160 3 4 9 Particles >38µm ASTM D7647 >40 0 1 0 Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2							
Particles >21μm ASTM D7647 >160 3 4 9 Particles >38μm ASTM D7647 >40 0 1 0 Particles >38μm ASTM D7647 >40 0 1 0 Particles >71μm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2							
Particles >38μm ASTM D7647 >40 0 1 0 Particles >71μm ASTM D7647 >10 0 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2	•						
Particles >71µm ASTM D7647 >10 0 0 0 Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2							
Oil Cleanliness ISO 4406 (c) >20/18/16 16/14/11 18/15/11 18/16/12 FLUID DEGRADATION method limit/base current history1 history2					-		
					-		
	FLUID DEGRADA		method	limi <u>t/base</u>	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.05	0.065	0.062	

Machine Id Component Pump Fluid **USPI VAC 100 (--- LTR)**

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable.

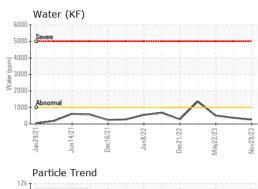
Fluid Condition

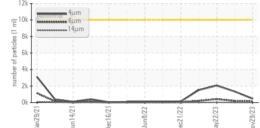
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

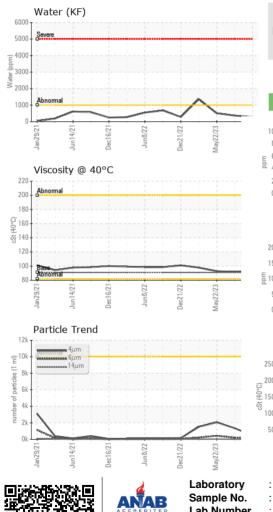
Contact/Location: JOHN KONRAD - KRADAV



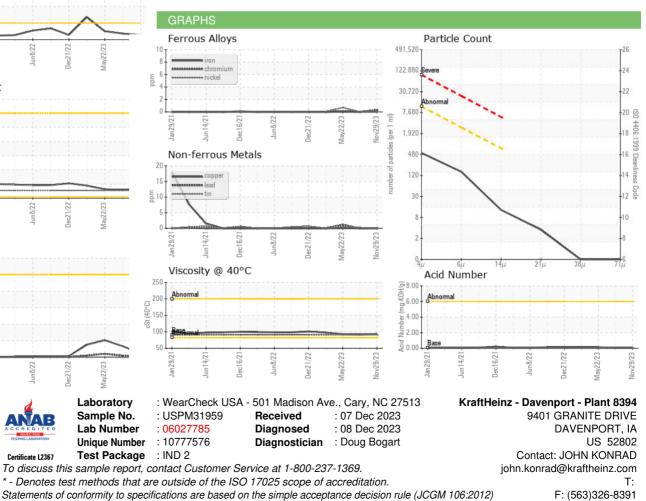
OIL ANALYSIS REPORT







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	>.1	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	91	93.4	91.6	92.8
SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Color						
Bottom						



Contact/Location: JOHN KONRAD - KRADAV