CONOSTAN®
Oil-Analysis Standards

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CANADA: 21800 Clark Graham Avenue
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CONOSTAN®
Oil-Analysis Standards

NEW

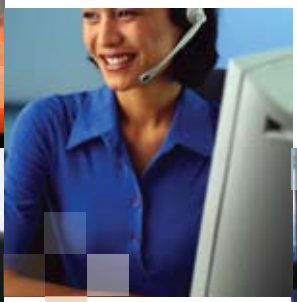
BIODIESEL
&
VISCOSITY
STANDARDS

"The benchmark for accurate measurements"

**Calibration &
Verification Standards**

VERSION
5.0

www.conostan.com



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CONOSTAN®

Oil Analysis Standards

A Division of

SCP SCIENCE

Calibration

& Verification

Standards for the

Analysis of:

- Lubricants: New and In-service
- Lubricant Additives
- Petroleum Products
- Organic Fluids / Materials

Viscosity Standards

See page 16

Biodiesel Sulfur
& Metallo-organic Standards

See page 20

President's Message

On September 21, 2007, ConocoPhillips and SCP SCIENCE signed a purchase-sale agreement whereby SCP SCIENCE would acquire the complete assets of Conostan from ConocoPhillips Speciality Products Division.

The assets included all aspects of the Conostan business, including trade names, websites, documentation, customer lists, current customer transactions, and the unique chemistry that has made Conostan the leader in metallo-organic standards around the world. The closing of the purchase-sale transaction was November 30, 2007, at which time ConocoPhillips officially handed over the Conostan business to SCP SCIENCE. Training and site conversion had already been underway for several months.

The complete Conostan business - production, quality control, inventory, customer records - is now located at the SCP SCIENCE manufacturing facility in Baie-D'Urfé, a suburb of Montreal, Quebec, Canada.

Conostan customers can now avail themselves of the opportunity for savings by purchasing their Conostan oil-based standards together with instruments, supplies, and aqueous standards for AA, ICP, XRF and rotrode spectroscopy from a single source.

It is our pleasure to welcome new and existing Conostan customers and an honour to serve you.

George Feilders
President

Table of Contents

ABOUT CONOSTAN

Our Reputation

SCP SCIENCE is proud to present its Conostan line of metallo-organic elements-in-oil standards. Conostan is the world's most trusted name in oil standards, whose industry-leading position is the result of a uniquely superior product chemistry and manufacturing technology together with proprietary blending techniques.

The Conostan brand history dates back 30 years, when the U.S. Department of Defense's Spectrometric Oil Analysis Program Standards Committee required calibration standards to analyze metals in lubricating oils to conduct wear-metals-analyses. At the time, commercially available metals-in-oil standards were unreliable and made calibrating analytical instrumentation difficult. Conostan's research and development department developed the chemistry for producing reliable element-in-oil standards, which were adopted by the Department of Defense.

Conostan is also the only source of multi-element metallo-organic standards in the history of the National Institute of Standards and Technology (NIST) — the reference material NIST-108b is Conostan S-21:300.

Our Products

Oil standards are used extensively in the calibration and operation of instruments that analyze elements in oil and other organic fluids. Our product lines offer a wide variety of reference standards, solvents, and reagents for ICP, DCP, rotating disk electrode, XRF, AA, and other analytical spectrometric techniques.

Our products are optimized for:

- Compatibility – We offer combinations of 38 different elements over an extensive concentration range.
- Solubility – Our standards are soluble in a variety of substances: ketones, mineral oil, xylene, kerosene, etc. We also produce blank oils and a kerosene-alternative for use as solvents.
- Volatility – Our standards are made in ultra-pure, highly processed hydrocarbon oil only: no solubilizers are used, making our standards extremely stable to volatile loss.
- Viscosity – The viscosity range of our standards at room temperature is ideal for instrumental applications.
- Instrumental response – Our standards provide excellent analytical response over a wide range of applications.
- Shelf life – All Conostan element standards and spectroscopy products have a one-year minimum shelf life from the date of shipment.

Applications

Conostan standards are used extensively in a variety of industries: energy, environmental, aircraft, railroad, automotive, heavy equipment, mining, chemical, and others. Essentially, wherever calibration of instruments for analyzing metals in oil and other organics is needed, Conostan standards provide consistent composition and performance.

Typical Uses:

1. For ICP, DCP, AA, and rotating disk emission spectrometric determinations of trace metals in organic materials, such as wear metals in used lubricating oils.

2. In AA and ICP spectrometric analyses of oils and other organics for As, Ba, Cd, Cr, Pb, Se, and other metals of environmental concern.

3. In AA and ICP emission analyses for trace metals in organics such as Co and Ni from metal-catalyzed reactions.

4. For XRF determinations of multi-element mixtures in organic systems such as Fe, Ni, Cu, and V in crude oils.

5. For emission spectrometric determinations of additive metals such as Ba, Ca, Mg, P, and Zn for quality control of motor oil formulations.

6. As internal standards and matrix adjustment components, and for the preparation of special multi-element blended standards to meet specific calibration requirements.

METALLO-ORGANIC STANDARDS

Conostan metallo-organic standards are oil-based metal calibration standards for use with ICP, AA, rotrode, XRF, DCP, flame emission, and other instruments.

Single-Element Standards

Blended in 20 cSt blank oil (size: 50 g)

	1000 ppm	5000 ppm		1000 ppm	5000 ppm
Ag	150-100-475	150-500-475	**Li**	150-100-035	150-500-035
Al	150-100-135	150-500-135	**Mg**	150-100-125	150-500-125
As	150-100-335	---	**Mn**	150-100-255	150-500-255
B	150-100-055	150-500-055	**Mo**	150-100-425	150-500-425
Ba	150-100-565	150-500-565	**Na**	150-100-115	150-500-115
Be	150-100-045	150-500-045	**Ni**	150-100-285	150-500-285
Bi	150-100-835	150-500-835	**P**	150-100-155	150-500-155
Ca	150-100-205	150-500-205	**Pb**	150-100-825	150-500-825
Ce	150-100-585	150-500-585	**Sb**	150-100-515	150-500-515
Cd	150-100-485	150-500-485	**Si**	150-100-145	150-500-145
Co	150-100-275	150-500-275	**Sn**	150-100-505	150-500-505
Cr	150-100-245	150-500-245	**Sr**	150-100-385	150-500-385
Cu	150-100-295	150-500-295	**Ti**	150-100-225	150-500-225
Fe	150-100-265	150-500-265	**V**	150-100-235	150-500-235
In	150-100-495	150-500-495	**W**	150-100-745	150-500-745
K	150-100-195	150-500-195	**Y**	150-100-395	150-500-395
La	150-100-575	150-500-575	**Zn**	150-100-305	150-500-305

	2000 ppm
Sc**	150-500-215

** size: 50 g, 20 cSt

	100 ppm
As*	150-101-331
Hg*	150-101-801
Se*	150-101-341

* size: 100 g, 75 cSt

Multi-Element Standards

Blended in 75 cSt blank oil

ppm	S-21		S-21+K	
	100 g	200 g	100 g	200 g
10	150-021-002	150-021-018	150-021-042	150-021-051
30	150-021-008	150-021-027	150-021-045	150-021-056
50	150-021-010	150-021-030	150-021-047	150-021-058
100	150-021-003	150-021-019	150-021-043	150-021-052
300	150-021-009	150-021-028	150-021-046	150-021-057
500	150-021-011	150-021-031	150-021-048	150-021-059
900	150-021-015	150-021-035	150-021-049*	150-021-061*

* 900 ppm nominal value, 885 ppm actual value

S-21: Ag, Al, B, Ba, Ca, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, P, Pb, Si, Sn, Ti, V, Zn

ppm	S-12	
	100 g	200 g
10	150-012-001	150-012-009
30	150-012-004	150-012-012
50	150-012-006	150-012-014
100	150-012-002	150-012-010
300	150-012-005	150-012-013
500	150-012-007	150-012-015
900	150-012-008	150-012-016

S-12: Ag, Al, Cr, Cu, Fe, Mg, Na, Ni, Pb, Si, Sn, Ti

ppm	AM-Special	
	100 g	200 g
900	150-250-014	150-250-027

AM-Special:
Ba, Ca, Mg, P, Zn

Custom Blends

If you require a combination or concentration of elements that we do not routinely stock, custom blends are available and can be shipped within two working days. To order, you may fill out and mail the form on page 27 of this booklet. We can make:

- Any combination of elements listed here (excluding As, Hg, and Se) at custom concentrations
- Single-element standards at custom concentrations
- S-21, S-12, and AM-Special blends at custom concentrations
- Additions to S-21, S-12, and AM-Special blends

Size: available in 100 g, 200 g, and 400 g

METALLO-ORGANIC STANDARDS (CONT'D)

D-Series Standards for Joint Oil Analysis Program (JOAP)

Direct from the Original Source

Conostan D-Series standards are available directly from SCP SCIENCE. Each D-3, D-12, and D-19 standard is furnished with a certificate of analysis.

Conostan is the original source of D-Series standards. More than 30 years ago, the U.S. Department of Defense's Spectrometric Oil Analysis Program Standards Committee required standards for its wear-metals-analysis programs.

With no reliable commercial source of metals-in-oil standards, Conostan's research department set to work in developing a reliable standard. The result was Conostan's uniquely superior product chemistry, which was adopted by the Department of Defense for its D-Series standards.

As with all Conostan products, you are guaranteed that the D-Series of standards are extremely stable and accurate.

Cross Reference with U.S. Deptartment of Defense Stock Numbers

Conostan product	Dept. of Defense NSN	Catalogue #
D3-100	9150-01-283-0249	150-300-019
D12-5	9150-01-307-3343	150-300-005
D12-10	9150-00-179-5145	150-300-001
D12-30	9150-00-179-5144	150-300-003
D12-50	9150-00-179-5143	150-300-006
D12-100	9150-00-179-5142	150-300-002
D12-300	9150-00-179-5141	150-300-004
D19-0	9150-00-179-5137	150-300-008
D19 set	9150-01-355-1178	150-300-018

D-Series Standards

ppm	D3 (200 g)	D12 (200 g)	D19 (100 g)
0 (blank)	150-300-008**	150-300-008**	150-300-008**
5	*	150-300-005	150-300-013
10	*	150-300-001	150-300-009
30	*	150-300-003	150-300-011
50	*	150-300-006	150-300-014
100	150-300-019	150-300-002	150-300-010
300	*	150-300-004	150-300-012
500	*	*	150-300-015
700	*	*	150-300-016
900	*	*	150-300-017

D3: B, Mo, Zn
D12: Ag, Al, Cr, Cu, Fe, Mg, Na, Ni, Pb, Si, Sn, Ti
D19: Ag, Al, B, Ba, Cd, Cr, Cu, Fe, Mg, Mn, Mo, Na, Ni, Pb, Si, Sn, Ti, V, Zn
Blank oil for D-Series: 150-300-008

***** *Custom ppm preparations available.*
*** 100g.*

D-19 Set

Product	Catalogue #
D-19 set	150-300-018

The D-19 set comprises the following concentrations and quantities:

ppm	D19 (100 g)	Quantity
0 (blank)	150-300-008	4
5	150-300-013	1
10	150-300-009	1
30	150-300-011	1
50	150-300-014	1
100	150-300-010	3
300	150-300-012	2
500	150-300-015	1
700	150-300-016	1
900	150-300-017	1

METALLO-ORGANIC STANDARDS (CONT'D)

Custom Blends of D-Series Standards

If you require a combination or concentration of elements that we do not routinely stock, custom blends are available.

We can make:

- Any combination of elements listed previously as custom concentrations
- Single-element standards at custom concentrations
- D-3, D-12, and D-19 blends at custom concentrations
- Additions to D-3, D-12, and D-19 blends

Size: Available in 100 g or 200 g

Available elements: Ag, Al, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, In, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Si, Sn, Sr, Ti, V, W, Y, Zn

Used Oil - Certified Reference Material - *Enviro***MAT™**

*Enviro***MAT™** Certified Reference Materials (CRM) can be an invaluable component of any laboratory quality control program. Consensus certification removes any chance of analytical bias.

- Each CRM is certified through a round-robin study employing specific methods of analysis:
  - Independant verification from multiple laboratories

- Includes certificate of analysis listing consensus values, confidence and tolerance intervals, and instructions for use:
  - Complete documentation for audit purposes

*Enviro***MAT™ Standards**	**Symbol**	**Quantity**	**Catalogue Number**
Oil, used	HU-1	125ml	140-025-041

MISCELLANEOUS PRODUCTS FOR METALLO-ORGANIC ANALYSIS

Base & Blank Standards

Typical Base & Blank Oil Properties

	20 cSt	75 cSt
Specific Gravity (25°C/25°C)	0.84–0.86	0.86–0.89
Viscosity: 40°C 100°C	14–18 cSt 3–4 cSt	65–72 cSt 8.1–8.7 cSt
Pour Point	–7°C (+20°F)	–15°C (+5°F)
Flash Point (minimum)	175°C (345°F)	215°C (420°F)
Trace Metals	<0.10 ppm	<0.15 ppm

Base Oils

Base oils are used for blending calibration standards for spectrometric analysis of metals in oil. Typical properties are tabled above. Note that these oils are not certified.

Size	20 cSt	75 cSt
500 ml	150-020-004	150-075-005
1 gal.	150-020-003	150-075-004

Blank Oils

Blank oils are supplied with a Certificate of Analysis including actual elemental concentration useful for blank subtraction in ICP-AES/MS. Physical properties are noted above.

Size	20 cSt	75 cSt
100 g	150-020-002	150-075-003
400 g	150-020-001	150-075-002
1 gal.	150-020-005	150-075-006

Stabilizer

Size	Catalogue #
50 g	150-010-001

PREMISOLV ICP SOLVENT

PremiSolv is a zero-odor alternative to kerosene or xylene for use as a diluent or zero-point standard in ICP/DCP analysis of metals in oil and other organic fluids.

PremiSolv Features:

- Extremely low odor – for a safer, more comfortable working environment
- Extremely low toxicity – compared with kerosene or xylene
- Extremely low metal content – comes with a certificate of analysis listing the concentrations of 34 different metals including sulfur
- Non-hazardous – for shipping and disposal

Size	Catalogue #
3.78 L (1 gallon)	150-700-003
18.9 L (5 gallons)	150-700-002

WANT TO SEE THE DIFFERENCE YOURSELF?
Ask for a free 400 ml sample.
Cat. No. 150-700-000

CHLORINE-IN-OIL STANDARDS

The chlorine product line is designed for calibration of XRF, ICP, and other analytical techniques. Stocked concentrations are shown in the table below.

Custom concentrations are available.

Chlorine Standards (size: 100 g)

ppm	Catalogue #
0 (blank)	150-200-008
10	150-200-001
100	150-200-002
500	150-200-005
1000	150-200-003
5000	150-200-006
10,000	150-200-004
50,000	150-200-007

SULFUR-IN-OIL STANDARDS

Conostan offers an expanding line of Sulfur standards that today encompasses four different matrices described below and on the following pages. Sulfur in Crude Oil Standards will be released shortly

The quality of many petroleum products are related to the amount of sulfur present. In fuels, the amount of sulfur is related to its performance characteristics and vehicle emission levels. Levels of sulfur in petroleum and petroleum products are regulated through federal, state and local agencies.

Sulfur-in-Isooctane

Sulfur in Isooctane by UV Fluorescence

Concentration (ppm)	Catalogue no.	Description
0, 0.5, 1.0, 2.5, 5.0, 7.5, 10	150-430-010	For very low Sulfur level, set of 7 x 10 ml vials. Complete with a Certificate of Analysis.
0, 5.0, 10, 25, 50, 100, 250	150-430-020	For low Sulfur level, set of 7 x 10 ml vials. Complete with a Certificate of Analysis.
0, 50, 100, 250, 500, 750, 1000	150-430-030	For high Sulfur level, set of 7 x 10 ml vials. Complete with a Certificate of Analysis.

Sulfur-in-Isooctane

Sulfur in Isooctane by X-Ray Fluorescence

ppm	Isooctane, 60 ml
0 (Blank)	150-430-101
50	150-430-102
100	150-430-103
250	150-430-104
500	150-430-105
750	150-430-106
1,000	150-430-107
Set of 7	150-430-100

SULFUR-IN-OIL STANDARDS (CONT'D)

Sulfur-in-Residual Oil

ppm	Residual Oil, 50 ml	Residual Oil, 100 ml
2,500	150-420-100	150-420-005
3,500	150-420-105	150-420-010
5,000	150-420-110	150-420-015
7,500	150-420-120	150-420-020
10,000	150-420-125	150-420-025
15,000	150-420-130	150-420-030
20,000	150-420-135	150-420-035
25,000	150-420-140	150-420-040
30,000	150-420-145	150-420-045
35,000	150-420-150	150-420-050
40,000	150-420-155	150-420-055
50,000	150-420-160	150-420-060

Sulfur Standards in Mineral Oil and Diesel Fuel (100g)

Sulfur in Mineral Oil

The sulfur-in-oil product line is designed for calibration of XRF, ICP, and other analytical instruments according to various ASTM methods (such as D2622, D3246, D4294, D5453, D6334, and D6443). Stocked concentrations are shown in the table below.

Sulfur in Diesel Fuel

Our line of sulfur in diesel fuel is specially engineered to have an elevated flash point, making it suitable for shipping as a non-hazardous product. Stocked concentrations are shown in the table below.

Custom Concentrations

For concentrations not listed in the table below, custom concentrations are available in both mineral oil and diesel fuel. Contact us for further information.

ppm	In mineral oil (100g)	In diesel fuel (100g)
0 (blank)	150-400-025	150-410-012
50	150-400-018	150-410-009
100	150-400-002	150-410-002
250	150-400-010	*
500	150-400-019	150-410-010
750	150-400-023	*
1000	150-400-003	150-410-003
2500	150-400-011	*
5000	150-400-020	150-410-011
7500	150-400-024	*
10,000	150-400-004	150-410-004
15,000	150-400-005	150-410-006
20,000	150-400-008	150-410-007
25,000	150-400-012	*
30,000	150-400-014	*
40,000	150-400-016	*
50,000	150-400-021	*

** Custom ppm preparations available*
*** A Certificate of Analysis reporting concentration and density are included with each standard*

VISCOSITY STANDARDS

The same product reliability and stability that our customers trust in metallo-organic standards are now available in General Purpose Viscosity standards. These certified, mineral oil based, viscosity standards were developed for calibration and verification of all types of viscometers, including glass capillary viscometers, rotational viscometers, cup and falling ball viscometers.

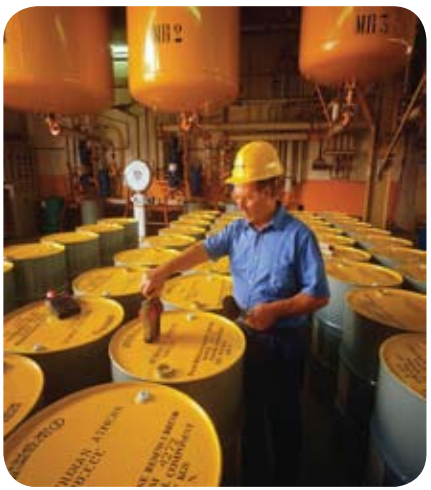
All standards are traceable to National Standards in accordance to ASTM & IP methods. Each standard carries a two year stability guarantee. The determination of kinematic and dynamic viscosity were made in accordance with ASTM D 445/446 and ISO 3104/3105, ISO/IEC 17025 and are traceable to the NIST (National Institute of Standards and Technology).

NEW

	Volume				
Viscosity Standards	125 ml	500 ml	1 Litre	4 Litre	20 Litre
S3	150-600-351	150-600-352	150-600-353	150-600-354	150-600-355
S6	150-600-141	150-600-142	150-600-143	150-600-144	150-600-145
N4	150-600-441	150-600-442	150-600-443	150-600-444	150-600-445
N10	150-600-181	150-600-182	150-600-183	150-600-184	150-600-185
S20	150-600-221	150-600-222	150-600-223	150-600-224	150-600-225
N35	150-600-261	150-600-262	150-600-263	150-600-264	150-600-265
N44	150-600-461	150-600-462	150-600-463	150-600-464	150-600-465
S60	150-600-301	150-600-302	150-600-303	150-600-304	150-600-305
N100	150-600-341	150-600-342	150-600-343	150-600-344	150-600-345
S200	150-600-231	150-600-232	150-600-233	150-600-234	150-600-235
N350	150-600-361	150-600-362	150-600-363	150-600-364	150-600-365
N415	150-600-471	150-600-472	150-600-473	150-600-474	150-600-475
S600	150-600-241	150-600-242	150-600-243	150-600-244	150-600-245
N1000	150-600-371	150-600-372	150-600-373	150-600-374	150-600-375
S2000	150-600-381	150-600-382	150-600-383	150-600-384	150-600-385
N4000	150-600-391	150-600-392	150-600-393	150-600-394	150-600-395
S8000	150-600-401	150-600-402	150-600-403	150-600-404	150-600-405
N15000	150-600-411	150-600-412	150-600-413	150-600-414	150-600-415
S30000	150-600-421	150-600-422	150-600-423	150-600-424	150-600-425

Typical Specifications for Conostan® Viscosity Standards (Continued)

	Kinematic Viscosity in mm2/s (Centistokes)									Saybolt Viscosity
	20 °C/ 68 °F	25 °C/ 77 °F	37.78 °C/ 100 °F	40°C/ 104 °F	50 °C/ 122 °F	60 °C/ 140 °F	80 °C/ 176 °F	98.89 °C/ 210 °F	100 °C/ 212 °F	37 °C/ 100 °F
S3	4.5	4.0	3.0	2.8	2.4	2.0	1.5	1.2	1.2	
S6	10	8.8	6.0	5.7	4.5	3.6	2.5	1.9	1.9	
N4	6.7	5.8	4.2	4.0	3.2	2.6	1.9	1.5	1.4	
N10	21	17	11	10	7.5	5.8	3.7	2.7	2.6	
S20	46	35	20	18	13	9.0	5.6	3.6	3.5	87
N35	90	67	36	32	21	15	8.4	5.4	5.3	167
N44	110	86	48	44	30	21	12	7.6	7.4	220
S60	160	119	60	54	35	26	12	7.7	7.5	281
N100	318	228	110	97	60	39	20	11	11	509
S200	715	487	206	180	103	64	30	17	16	954
N350	1400	940	370	330	180	110	46	24	23	1730
N415	1900	1200	480	410	220	130	55	29	28	2200
S600	2400	1600	600	520	280	160	66	34	32	
N1000	5100	3300	1200	1000	520	290	110	52	50	
S2000	8200	5200	1900	1600	780	400	150	70	68	
N4000	18000	11000	3900	3300	1600	840	280	123	117	
S8000	37000	23000	7900	6700	3200	1600	520	210	200	
N15000	64000	40000	13000	11000	5300	2700	850	340	320	
S30000		80000	28000	23000	11000	5800	1700	670	640	



All calibrations and tests are based on a master viscometer procedure located in ASTM D 2162 and the National Institute of Standards and Technology (NIST) value of 1.0016 mPa.s (centipoise) for water at 20°C (68°F). Custom standards are available. Please contact us for more information.

Typical Specifications for Conostan® Viscosity Standards (Continued)

	Dynamic Viscosity in mPa.S (Centipoise)									Saybolt Viscosity
	20 °C/ 68 °F	25 °C/ 77 °F	37.78 °C/ 100 °F	40°C/ 104 °F	50 °C/ 122 °F	60 °C/ 140 °F	80 °C/ 176 °F	98.89 °C/ 210 °F	100 °C/ 212 °F	37 °C/ 100 °F
S3	3.7	3.3	2.4	2.3	1.9	1.6	1.2	0.9	0.9	
S6	8.7	7.3	5.0	4.7	3.6	2.9	2.0	1.5	1.4	
N4	5.6	4.8	3.4	3.2	2.6	2.1	1.5	1.1	1.1	
N10	18	14	9.0	8.4	6.2	4.7	3.0	2.1	2.1	
S20	40	30	17	15	11	7.6	4.7	2.9	2.9	87
N35	78	59	31	28	18	13	7.0	4.4	4.3	167
N44	91	71	39	36	24	17	9.4	6.0	5.8	220
S60	138	102	52	46	30	22	9.9	6.3	6.1	281
N100	276	197	94	83	51	33	16	9.4	9.1	509
S200	613	416	174	152	87	54	24	15	13	954
N350	1200	810	320	280	150	92	38	20	19	1730
N415	1600	1100	410	350	190	110	45	23	23	2200
S600	2100	1400	510	440	240	140	55	28	26	
N1000	4400	2800	1000	940	440	240	92	43	41	
S2000	7200	4500	1600	1400	670	340	130	58	56	
N4000	16000	9700	3400	2900	1400	720	240	100	98	
S8000	33000	20000	6900	5900	2800	1400	440	180	170	
N15000	57000	36000	11000	9700	4700	2400	730	290	270	
S30000		72000	25000	20000	9700	5100	1500	570	550	

Typical Specifications for Conostan® Viscosity Standards (Continued)

Density in g/ml in accordance with ASTM D7042									
	20 °C/ 68 °F	25 °C/ 77 °F	37.78 °C/ 100 °F	40°C/ 104 °F	50 °C/ 122 °F	60 °C/ 140 °F	80 °C/ 176 °F	98.89 °C/ 210 °F	100 °C/ 212 °F
S3	0.833	0.830	0.821	0.820	0.813	0.806	0.792	0.779	0.778
S6	0.831	0.828	0.819	0.818	0.811	0.805	0.791	0.779	0.778
N4	0.834	0.831	0.822	0.820	0.814	0.807	0.793	0.780	0.780
N10	0.842	0.839	0.831	0.829	0.823	0.816	0.804	0.791	0.791
S20	0.871	0.868	0.860	0.859	0.852	0.846	0.833	0.821	0.820
N35	0.872	0.869	0.861	0.860	0.853	0.847	0.834	0.823	0.822
N44	0.828	0.825	0.817	0.816	0.809	0.803	0.791	0.779	0.779
S60	0.863	0.860	0.852	0.851	0.845	0.839	0.826	0.815	0.814
N100	0.867	0.864	0.857	0.855	0.849	0.843	0.831	0.820	0.819
S200	0.858	0.855	0.847	0.846	0.840	0.834	0.822	0.910	0.810
N350	0.863	0.860	0.852	0.851	0.845	0.839	0.827	0.816	0.815
N415	0.865	0.862	0.854	0.853	0.847	0.841	0.830	0.819	0.818
S600	0.866	0.864	0.856	0.855	0.849	0.843	0.832	0.820	0.820
N1000	0.872	0.869	0.862	0.860	0.855	0.849	0.837	0.826	0.826
S2000	0.876	0.873	0.865	0.864	0.858	0.853	0.841	0.831	0.830
N4000	0.882	0.879	0.872	0.871	0.865	0.860	0.849	0.838	0.838
S8000	0.888	0.885	0.878	0.877	0.872	0.866	0.855	0.845	0.845
N15000	0.893	0.891	0.884	0.883	0.877	0.872	0.861	0.851	0.851
S30000		0.896	0.889	0.888	0.883	0.877	0.867	0.857	0.857

BIODIESEL STANDARDS

Biodiesel is a clean burning alternative fuel, produced from domestic, renewable resources, such as virgin soybean and rapeseed (canola) oils. Biodiesel contains no petroleum, but it can be blended at any concentration with petroleum diesel to create a biodiesel blend. Blends of biodiesel and pure unblended biodiesel can be used in modern diesel engines with no modification required.

SCP SCIENCE-CONOSTAN® offers a new line of biodiesel standards for the analysis of metals and sulfur in biodiesel fuel. Manufactured in accordance to ASTM methods D7039, D6751, D5453 and EN14214 for ICP and XRF analysis. Complete with a Certificate of Analysis.

Metals in Biodiesel

SCP SCIENCE-CONOSTAN® offers multi-element standards for Ca, K, Mg, Na and P in B100 Biodiesel. Blank standard is also available. Manufactured in accordance to methods D4951, EN14531, EN14017, EN14108 and EN14109 for ICP analysis. Single element, multi element and custom multi element in biodiesel standards are available upon request.

METALS IN BIODIESEL	100% BIODIESEL (B100) BDM5 (100 g)	100% BIODIESEL (B100) BDM2A (100 g)	100% BIODIESEL (B100) BDM2B (100 g)
ELEMENTS	**Ca, K, Mg, Na, P**	**K, Na**	**Ca, Mg**
ppm	CATALOGUE NUMBER	CATALOGUE NUMBER	CATALOGUE NUMBER
0 (Blank)	150-441-000	150-441-000	150-441-000
2.5	150-441-005	150-441-030	150-441-065
5	150-441-010	150-441-035	150-441-070
10	150-441-015	150-441-040	150-441-075
15	150-441-020	150-441-045	150-441-080
20	150-441-025	150-441-050	150-441-085
25	-	150-441-055	150-441-090
50	-	150-441-060	150-441-095

Sulfur in Biodiesel

SCP SCIENCE-CONOSTAN® offers sulfur in biodiesel standards in 5% (B5) and 20% (B20) biodiesel blends. Blank standard is also available. Manufactured in accordance to ASTM methods D7039, D6751, D5453 and EN14214 for ICP and XRF analysis. Custom blends biodiesel standards are available upon request.

SULFUR IN BIODIESEL	5% BIODIESEL (B5) SULFUR (100 g)	20% BIODIESEL (B20) SULFUR (100 g)	100% BIODIESEL (B100) SULFUR (100 g)
ppm	CATALOGUE NUMBER	CATALOGUE NUMBER	CATALOGUE NUMBER
0 (Blank)	150-440-000	150-440-050	150-440-100
5	150-440-005	150-440-055	150-440-105
10	150-440-010	150-440-060	150-440-110
15	150-440-015	150-440-065	150-440-115
30	150-440-020	150-440-070	150-440-120
50	150-440-025	150-440-075	150-440-125
75	150-440-030	150-440-080	150-440-130
100	150-440-035	150-440-085	150-440-135
200	150-440-040	150-440-090	150-440-140
500	150-440-045	150-440-095	150-440-145

PARTISTAN - PARTICLE COUNTER STANDARDS

PartiStan particle standards are designed for calibration and verification of automatic particle counters.

Product History

In 1999, a new calibration procedure (ISO 11171) for automatic particle counters was introduced, rendering previous procedures (i.e. ISO 4402) obsolete. With the new procedure, primary calibration requires NIST SRM 2806 - a suspension of 2.8 µg/ml of ISO medium test dust in super-clean hydraulic fluid. This is available from Conostan as PartiStan 2806.

Conostan also offers a secondary standard for conducting verifications of working instruments or to calibrate more than one instrument in a laboratory. PartiStan secondary standards are compliant with ISO 11171 and prepared using SRM 2806.

Description	Size	Catalogue #
PartiStan 2806	400 ml	150-701-001
PartiStan resolution standard	400 ml	150-701-002
PartiStan SCF (super-clean fluid)	400 ml	150-701-003
PartiStan SCF (super-clean fluid)	3.78 L (1 gallon)	150-701-004
PartiStan UFTD (ultra-fine test-dust suspension in SCF)	400 ml	150-701-005

FTIR STANDARDS

Our FTIR operational test standard is a petroleum oil–based fluid that looks and handles like routinely tested used-oil samples. It is designed for validating FTIR instrument performance in order to ensure repeatability and reproducibility.

Description	Size	Catalogue #
FTIR operational test standard	100 g	150-702-001

For initial setup, we include a disk containing the analytical methods necessary to perform tests with information specific to your instrument:

- DigiLab (Varian) – available
- PerkinElmer – not yet available (contact the manufacturer)
- Thermo Nicolet – not yet available (contact the manufacturer)

CUSTOM QUOTATION REQUEST FORM FOR METALLO-ORGANIC STANDARDS

Complete this form to receive a quotation for your specific oil-based standard.
Photocopy for use with multiple requests.

Contact Information

Name: _____

Company: _____

Mailing address: _____

City: _____ State/Province: _____

Country: _____ Zip/Postal code: _____

Telephone: _____ Fax: _____

E-mail: _____ Account number: _____

Please indicate the concentration (ppm) required for each element:

	ppm		ppm		ppm
Ag		Fe		Pb	
Al		In		Sb	
B		K		Sc	
Ba		La		Si	
Be		Li		Sn	
Bi		Mg		Sr	
Ca		Mn		Ti	
Cd		Mo		V	
Co		Na		W	
Cr		Ni		Y	
Cu		P		Zn	

Size (g): _____ Rate of use (L/year): _____

Special requirements: _____ Custom name: _____

Application: _____

Base Oil: ☐ 20 cSt ☐ 75 cSt ☐ 245 cSt

Fax this form to:

USA/Canada ..... 1(800) 253-5549
Outside North America ..... +1 (514) 457-4499
E-mail ..... sales@scpscience.com

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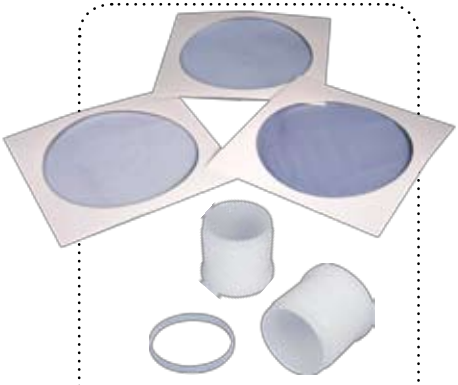

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- Sample cells
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- Hollow cathode lamps
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- Autosampler tubes

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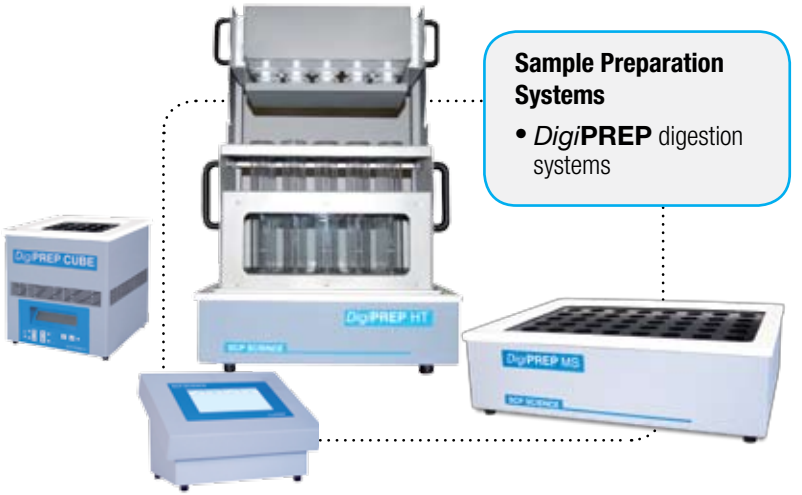
Closed Vessel Microwave Digestion

- *NOVA**WAVE***



Sample Preparation Systems

- *Digi***PREP** digestion systems

CONOSTAN®
Oil Analysis Standards

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SAMPLE COA

Certificate of Analysis

1.0 DESCRIPTION: **CONOSTAN Viscosity Reference Standard, N100**

Catalogue Number: 150-600-341 / 150-600-342 / 150-600-343/ 150-600-344 / 150-600-345
Lot Number: **0613**
Matrix: White mineral oil
Expiration Date: **March 2012**

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Temperature		Kinematic Viscosity	Dynamic Viscosity	Density	Saybolt Viscosity
ºC	ºF	mm^2/s (cSt)	mPa-s (cP)	(g/ml)	(SUS)
20.00	68.00	322.0	279.2	0.8671	
25.00	77.00	232.3	200.8	0.8642	
37.78	100.00	110.9	94.96	0.8563	513.5
40.00	104.00	98.70	84.38	0.8549	
50.00	122.00	61.17	51.93	0.8489	
60.00	140.00	40.15	33.84	0.8428	
80.00	176.00	19.96	16.58	0.8307	
98.89	210.00	11.83	9.691	0.8192	N/A
100.00	212.00	11.50	9.416	0.8185	

***Expanded Uncertainty**

Viscosity Range	Kinematic Viscosity mm^2/s (cSt)	Dynamic Viscosity mPa-s (cP)
0.3 to 10	±0.12%	±0.12%
10 to 100	±0.17%	±0.17%
100 to 1000	±0.21%	±0.21%

Method of analysis and traceability:

This viscosity standard has been prepared according to ASTM methods D445, D446 and corresponding ISO methods 3104 and 3105. Kinematic viscosities have been determined using Master Viscometers calibrated according to ASTM method D2162 and based on the established kinematic viscosity of $1.0034 mm^2/s$ for distilled water at 20.00ºC per ISO/TR3666. Conversion of Kinematic to Saybolt viscosity has been calculated according to ASTM method D2161. Density has been determined according to ASTM method D7042. Thermometers used for temperature measurements are NIST traceable.

* The uncertainty of the certified values have been calculated from applicable uncertainty contributors (u_i). The combined uncertainty ($u_c = \sqrt{\sum u_i^2}$) has been multiplied by a coverage factor (k) of 2 to provide a 95% confidence interval.

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Ayman Wassef, Conostan Production Supervisor
Certification Date: March 17, 2010

Ayman Wassef

CONOSTAN®
Oil Analysis Standards

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Certificate of Analysis

1.0 DESCRIPTION: **CONOSTAN Multi-Element Standard S-21:900 ppm**

Catalogue Number: **150-021-015 / 150-021-035**
Lot Number: **21411900**
Matrix: Base Oil 75 cSt
Expiration Date: **12 months from date of shipment**

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentrations, ppm (µg/g):

Ag	900±1	Al	900±1	B	900±3	Ba	900±1
Ca	900±1	Cd	900±1	Cr	900±2	Cu	900±2
Fe	900±4	Mg	900±2	Mn	900±2	Mo	900±1
Na	900±1	Ni	900±2	P	900±2	Pb	900±3
Si	900±1	Sn	900±3	Ti	900±1	V	900±2
Zn	900±1						

Method of analysis and traceability:

This standard was prepared by weight measurements originating from assayed element Concentrates. A precursor blend was verified by atomic emission or absorption spectroscopy. Element concentrations for this standard are based on the Concentrate assay* values and were prepared to within the uncertainty values listed above at the 95% Confidence Interval, as determined by weight measurements of blend components conducted on balances calibrated and verified with NIST traceable weights.

*Each element Concentrate was assayed by classical wet chemical methods. Precision of assay measurement is ±0.5 percent maximum, but typically ±0.3 percent, or less. Assay accuracy is within one percent of measured value, but typically much less, as determined by co-measurement of, and traceability to, NIST Standards, or Certified Analytical Reagent Grade Chemicals, if no suitable NIST standards exists.

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Date: June 18th, 2010

Certification Approval: Ayman Wassef

Ayman Wassef
Conostan Production Supervisor

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