



CONOSTAN® - OIL ANALYSIS STANDARDS

SCP SCIENCE is proud to present CONOSTAN® - 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.

The CONOSTAN® brand history dates back almost 50 years to the rise to prominence of AAS and ICP-OES as analytical techniques for analysis of metals in oil. To fill the void with regards to reliable Calibration Standards, the CONOSTAN® research

and development team created the chemistry for producing reliable Element-in-Oil Standards. These standards were then eagerly adopted by laboratories world-wide, the US Department of Defense, and even used by NIST for SRM-1085b.

Since that time CONOSTAN® has developed a wide range of products for oil testing focussing on the needs of the petrochemical and lubricant manufacturing industries as well as lubricant condition monitoring.

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METALLO-ORGANIC STANDARDS

CONOSTAN® is the world leader in the manufacture of Metallo-Organic Standards and is considered the quality benchmark in the industry. These standards are a must for a wide variety of industrial and research laboratory applications due to their superior accuracy, precision, stability and fitness for use.



SPECIFICATIONS

Features

Accuracy and Precision

Assayed by ISO 17025 approved methods and prepared in accordance with ISO Guide34, CONOSTAN® Single Element Standards typically provide the user with under 0.5% relative uncertainty.

Stability

Manufactured primarily using tried-and-true sulfonate chemistry, with commonality of organic base molecule, CONOSTAN® Metallo-Organic Standards have proven themselves to be the premier market product in this respect.

Fitness for use

Whatever the analysis method and however the sample is prepared, CONOSTAN® Metallo-Organic Standards are right for the application. Available in a wide variety of matrices, the standards are stable and miscible in virtually any non-polar oil or solvent.

METALLO-ORGANIC STANDARDS

SINGLE ELEMENT STANDARDS

Features

38 elements available in 20 cSt mineral oil

1000 and 5000 ppm concentrations stocked (some exceptions - see below)

50g format

ISO 17025 compliant Certificate of Analysis stating

- Certified concentration value
- Uncertainty
- Expiry date

Shelf life: 12 months from date of shipment

Stabilizer and Certified Blank oils available for dilution and analysis. See page 221

Whether looking to calibrate for a single element or to prepare your own multi-element standard, **CONOSTAN®** offers a complete range of Single-Element Standards.

Element	1000 ppm 50 g	5000 ppm 50 g	Element	1000 ppm 50 g	5000 ppm 50 g
Ag	150-100-475	150-500-475	Mg	150-100-125	150-500-125
Al	150-100-135	150-500-135	Mn	150-100-255	150-500-255
As	150-101-331 [‡]	---	Mo	150-100-425	150-500-425
B	150-100-055	150-500-055	Na	150-100-115	150-500-115
Ba	150-100-565	150-500-565	Ni	150-100-285	150-500-285
Be	150-100-045	150-500-045	P	150-100-155	150-500-155
Bi	150-100-835	150-500-835	Pb	150-100-825	150-500-825
Ca	150-100-205	150-500-205	Sb	150-100-515	150-500-515
Ce	150-100-585	150-500-585	Sc	150-500-215*	---
Cd	150-100-485	150-500-485	Se	150-101-341 [‡]	---
Co	150-100-275	150-500-275	Si	150-100-145	150-500-145
Cr	150-100-245	150-500-245	Sn	150-100-505	150-500-505
Cu	150-100-295	150-500-295	Sr	150-100-385	150-500-385
Fe	150-100-265	150-500-265	Ti	150-100-225	150-500-225
Hg	150-101-801 [‡]	---	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
Li	150-100-035	150-500-035	Zr	150-100-405	150-500-405

For Blank Oil See Page 221

‡ - 100 ppm

* - 2000 ppm

METALLO-ORGANIC STANDARDS

CUSTOM BLENDS

Features

All 38 elements available, combinable at the concentration of your choice

Available in a wide variety of matrices

Available in 100g, 200g and 400g bottles

Shelf life: 12 months from date of shipment

Inquire about custom volumes of stocked products

Find yourself repeatedly preparing the same blends of Single-Element Standards for your calibration curve or QC standard?

Think about ordering a **CONOSTAN®** custom blend!

Shorter preparation time can lead to greater throughput.

Eliminate sources of uncertainty due to preparation error, rely instead on the accompanying ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date.

AM-SPECIAL STANDARDS

CONOSTAN® Additive Metal Special is multi-element standard designed for the lubricants industry.

Features

Stocked at different concentrations of the following elements: Ba, Ca, Mg, P, Zn in 75 cSt mineral oil

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

Available in 100g, 200g and 400g formats

Custom concentrations and element additions are available, example: AM-Special + B

Stabilizer and Certified Blank oils available for analysis. See page 221

ppm	100g	200g	400g
0	See Page 221		
500	150-250-010	150-250-023	---
900	150-250-014	150-250-027	150-250-004
1000	150-250-006	150-250-016	150-250-001
2500	150-250-007	150-250-018	---
3000	150-250-009	150-250-020	---
5000	150-250-011	150-250-024	150-250-003
7000	150-250-013	150-250-025	---

METALLO-ORGANIC STANDARDS

S-21 AND S-12 STANDARDS

Features

- 21 or 12 element blends in 75 cSt mineral oil
- Range of stocked concentrations
- ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date
- Available in 100g and 200g formats

Concentrations and custom element additions are available, example: S-21+K

Stabilizer and certified blank oils available for dilution and analysis. See page 221



For over 30 years CONOSTAN® S-21 has been the *gold standard* for the testing of metals in oil.

Initially designed for Lubricant Condition Monitoring, S-21 and S-12 are Multi-Element Standards, stocked at a range of concentrations designed to suit a wide range of calibration needs.

ppm	S-21	
	100g	200g
Blank	See Page 221	
10	150-021-002	150-021-018
30	150-021-008	150-021-027
50	150-021-010	150-021-030
100	150-021-003	150-021-019
300	150-021-009	150-021-028
500	150-021-011	150-021-031
900	150-021-015	150-021-035

ppm	S-12	
	100g	200g
Blank	See Page 221	
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

Element	Ag	Al	B	Ba	Ca	Cd	Cr	Cu	Fe	Mg	Mn	Mo	No	Ni	P	Pb	Si	Sn	Ti	V	Zn
S-21	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
S-12	•	•					•	•	•	•			•	•		•	•	•	•		

S-21

CERTIFICATE OF ANALYSIS

CONOSTAN[®]
Oil Analysis Standards

Manufactured by SCP SCIENCE
21800 Clark Graham, Baie d'Urfé
Quebec, Canada H9X 4B6
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: **CONOSTAN Multi-Element Standard**
S-21:100 ppm
Catalogue Number: **150-021-003 / 150-021-019**
Lot Number: **21505100**
Matrix: **Base Oil 75 cSt**
Expiration Date: **12 months from date of shipment (see bottle for date of shipment)**

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentrations, ppm (µg/g):

Ag	100.0±0.31	Al	100.0±0.40	B	100.0±0.17	Ba	100.0±0.10
Ca	100.0±0.50	Cd	100.0±0.43	Cr	100.0±0.43	Cu	100.0±0.19
Fe	100.0±0.56	Mg	100.0±0.24	Mn	100.0±0.19	Mo	100.0±0.11
Na	100.0±0.29	Ni	100.0±0.38	P	100.0±0.43	Pb	100.0±0.75
Si	100.0±0.37	Sn	100.0±0.55	Ti	100.0±1.08	V	100.0±0.35
Zn	100.0±0.19						

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: March 12, 2015

Certification Approval:



Alketa Mixha
Conostan Production Manager



METALLO-ORGANIC STANDARDS

BIODIESEL STANDARDS

Features

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

Available in a 100g format

Custom element additions are available

Stabilizer and certified blank oils available for dilution and analysis. See page 221

CONOSTAN® offers a line of Multi-Element, Metallo-Organic Standards in biodiesel. Designed and manufactured primarily for use in ICP-OES and XRF analysis, blends of naturally occurring elements are offered in several combinations and concentrations.

METALS IN BIODIESEL	100% BIODIESEL (B100) BDM5 (100 g)	100% BIODIESEL (B100) BDM2A (100 g)	100% BIODIESEL (B100) BDM2B (100 g)
Elements (ppm)	Ca, K, Mg, Na, P	K, Na	Ca, Mg
0 (Blank)	150-441-000	150-441-000	150-441-000
2.5	151-441-005	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

METALLO-ORGANIC STANDARDS

CRUDE AND RESIDUAL OIL STANDARDS

Searching for standards to analyze Iron, Nickel or Vanadium in Crude or Residual oil?

Look no further!

CONOSTAN® offers a complete line of varied concentrations of these elements, designed for analysis by AAS, ICP-OES or XRF.

Features

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

Available in a 100 ml format

Custom element additions are available

RESIDUAL OIL

Iron, ppm	Nickel, ppm	Vanadium, ppm	Catalog No. (100 ml)
1	2	2	150-421-000
300	10	500	150-421-005
500	100	25	150-421-010
100	80	250	150-421-015
200	40	100	150-421-020
400	5	400	150-421-025
1	60	300	150-421-030
500	2	200	150-421-035
100	100	2	150-421-040
300	50	250	150-421-045
200	20	500	150-421-050
50	100	50	150-421-055
Complete Set			150-421-060

CRUDE OIL

Iron, ppm	Nickel, ppm	Vanadium, ppm	Catalog No. (100 ml)
1	2	2	150-451-000
300	10	500	150-451-005
500	100	25	150-451-010
100	80	250	150-451-015
200	40	100	150-451-020
400	5	400	150-451-025
1	60	300	150-451-030
500	2	200	150-451-035
100	100	2	150-451-040
300	50	250	150-451-045
200	20	500	150-451-050
50	100	50	150-451-055
Complete Set			150-451-060

METALLO-ORGANIC STANDARDS

D-SERIES STANDARDS

Features

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

JOAP Approved

Available in a 200g format for D3 & D12 and 100g for D19

Stabilizer and certified blank oils available for dilution and analysis

Custom preparations available.

CONOSTAN® is the original source of D-Series Standards. More than 35 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, the CONOSTAN® research team set to work in developing a reliable standard. The result was CONOSTAN®'s uniquely superior sulfonate chemistry which was adopted by the Department of Defense for its D-Series Standards.

As with all CONOSTAN® products, the D-Series of standards are extremely stable and accurate.

Now available in Original and MIL-DTL-85694-compliant (JOAP) formulations! Returning CONOSTAN® D Series users should select from the CONOSTAN® original line of standards, while JOAP participants can now choose from our MIL-DTL-85694-compliant line.

Element	Ag	Al	B	Ba	Cd	Cr	Cu	Fe	Mg	Mn	Mo	Na	Ni	Pb	Si	Sn	Ti	V	Zn
D3			•								•								•
D12	•	•				•	•	•	•			•	•	•	•	•	•		
D19	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

CONOSTAN® Product	Volume	Cross Reference # with Dept. of Defense NSN	MIL-DTL-85694	CONOSTAN® Original
D19-0	200g	9150-00-179-5137	150-301-008	150-300-008
D3-100	200g	9150-01-283-0249	150-301-019	150-300-019

CONOSTAN® Product	Volume	Cross Reference # with Dept. of Defense NSN	MIL-DTL-85694	CONOSTAN® Original
D19-0	200g	9150-00-179-5137	150-301-008	150-300-008
D12-5	200g	9150-01-307-3343	150-301-005	150-300-005
D12-10	200g	9150-00-179-5145	150-301-001	150-300-001
D12-30	200g	9150-00-179-5144	150-301-003	150-300-003
D12-50	200g	9150-00-179-5143	150-301-006	150-300-006
D12-100	200g	9150-00-179-5142	150-301-002	150-300-002
D12-300	200g	9150-00-179-5141	150-301-004	150-300-004

METALLO-ORGANIC STANDARDS

D-SERIES STANDARDS

CONOSTAN® Product	MIL-DTL-85694	CONOSTAN® Original	D-19 Set Quantity / JOAP # 150-301-018* Orig. #150-300-018 / NSN 9150-01-355-1178
D19-0	150-301-008	150-300-008	4
D19-5	150-301-013*	150-300-013	1
D19-10	150-301-009*	150-300-009	1
D19-30	150-301-011*	150-300-011	1
D19-50	150-301-014*	150-300-014	1
D19-100	150-301-010*	150-300-010	3
D19-300	150-301-012*	150-300-012	2
D19-500	150-301-015*	150-300-015	1
D19-700	150-301-016*	150-300-016	1
D19-900	150-301-017*	150-300-017	1

D-19 Series is available in 100g format

* Coming December 2015

ROTATING DISK ELECTRODE (RDE) SPECTROSCOPY - ELECTRODES

Introducing **CONOSTAN®** graphite electrodes for RDE Spectrometers, made from the highest purity graphite and machined precisely to very tight tolerances. Conveniently packaged and competitively priced, just choose the right electrodes for your instrument.

Description	Designed for	Cross Reference No.	Catalog No.
D2 Rotating Disk (100)	Baird, MOA, GNR	9100001	070-070-001
D2 Rotating Disk, angled (500)	Spectroil M	MR9019	070-070-002
D2 Rotating Disk (500)	Spectroil M	M97008	070-070-003
D2 Rotating Disk, High Porosity (500)	RFS		070-070-101
Graphite Rods, .242" x 4" (100)	General		070-071-001
Graphite Rods, .242" x 6" (100)	Spectroil M Baird, MOA, GNR	M97009 9100002	070-071-002
Graphite Rods, .242" x 12" (100)	General		070-071-003

Reference
Electrode

AC Arc

Rotating
Electrode



METALLO-ORGANIC STANDARDS

BLANK OILS, SOLVENTS, STABILIZER AND INTERNAL STANDARDS

SPECIFICATIONS



	20 cSt	75 cSt	PremiSolv™
Specific Gravity (25°C/25°C)	0.84–0.86	0.86–0.89	0.82–0.83
Viscosity: 40°C	14–18 cSt	65–72 cSt	2–3 cSt
100°C	3–4 cSt	8.1–8.7 cSt	---
Pour Point	–7°C (+20°F)	–15°C (+5°F)	–40°C(–40°F)
Flash Point (minimum)	175°C (345°F)	215°C (420°F)	99°C(210°F)
Trace Metals	<0.10 ppm	<0.15 ppm	<0.10 ppm

Blank Oils

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

Format	20 cSt	75 cSt
100 g	150-020-002	150-075-003
400 g	150-020-001	150-075-002
3.78 L (1 Gallon)	150-020-005	150-075-006

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 for metal content.

Format	20 cSt	75 cSt
500 ml	150-020-004	150-075-005
3.78 L (1 Gallon)	150-020-003	150-075-004

Stabilizer

CONOSTAN® Single and Multi-Element Standards are stable for at least one year. When preparing intermediate or working standards at low concentrations, or when using particularly aggressive solvents, CONOSTAN® stabilizer can help to ensure consistent results. The stabilizer is effective for both single and multi-element blends of CONOSTAN® Standards in hydrocarbon oil.

Format	Catalog No.
50 g	150-010-001

METALLO-ORGANIC STANDARDS

BLANK OILS, SOLVENTS, STABILIZER AND INTERNAL STANDARDS

Internal Standards

Internal Standards are often used in ICP-OES in order to compensate for, and minimize, the impact of instrument-related variability.

Cobalt is the element of choice for many end-users and therefore **CONOSTAN®** is proud to offer a 3% Cobalt Standard for this purpose.

COBALT 3%

Format	Catalog No.
100 g	150-502-001
200 g	150-502-002
400 g	150-502-003

PremiSolv™

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

Format Catalog No.

Format	Catalog No.
3.78 L (1 gallon)	150-700-003
18.5 L (5 gallons)	150-700-002

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



**WOULD YOU LIKE TO COMPARE?
ASK FOR A FREE 400 ml SAMPLE
CAT. #150-700-000**
CONTACT OUR SALES DEPARTMENT
FOR MORE INFORMATION SALES@SCPSCIENCE.COM



METALLO-ORGANIC STANDARDS

CONOSTAN®
Oil Analysis Standards

Manufactured by SCP SCIENCE
21800 Clark Graham, Baie d'Urfé
Quebec, Canada H9X 4B6
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: **CONOSTAN Premisolv™ ICP Solvent**
Catalogue Number: 150-700-000 / 150-700-001 / 150-700-002 / 150-700-003
Lot Number: 64
Matrix: N/A
Expiration Date: 12 months from date of shipment

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Trace Element Concentrations, ppm (µg/g) :

Ag	<0.01	Al	<0.01	B	<0.01	Ba	<0.01
Be	<0.01	Bi	<0.01	Ca	<0.01	Cd	<0.01
Co	<0.01	Cr	<0.01	Cu	<0.01	Fe	<0.01
In	<0.05	K	<0.05	La	<0.03	Li	<0.01
Mg	<0.01	Mn	<0.01	Mo	<0.03	Na	<0.05
Ni	<0.01	P	<0.02	Pb	<0.10	S*	<1
Sb	<0.02	Sc	<0.01	Si	<0.01	Sn	<0.1
Sr	<0.01	Ti	<0.01	V	<0.01	W	<0.01
Y	<0.01	Zn	<0.01				

Method of analysis and traceability:

Trace element values were determined by atomic emission spectroscopy and are traceable to the applicable NIST 31 series Standard Reference Materials.

*Sulfur value was determined by ASTM D5453 with standards traceable to NIST SRM 1616a.

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Date: March 31, 2015

Certification Approval:



Alketa Mixha
Conostan Production Manager



SULFUR STANDARDS

Sulfur is a contaminant found in petroleum products including crude oils, fuels and lubricants. For certain products, sulfur content is regulated for emissions, while in others it inhibits performance. In almost all cases, it requires precise monitoring.

For this purpose, **CONOSTAN®** offers a complete range of Sulfur Standards in a wide variety of matrices, at the concentrations you need, designed for analysis using ICP-OES, XRF and UV-F.



Features

Available in Crude oil, Residual oil, Isooctane, Mineral oil, Diesel, and now Biodiesel

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

Available in a variety of formats, as noted

Custom concentrations are available

Certified Blanks available for analysis

SULFUR STANDARDS IN BIODIESEL

CONOSTAN® offers Sulfur in Biodiesel Standards in 5% (B5) and 20% (B20) biodiesel blends. A blank standard is also available. Manufactured in accordance with ASTM methods D7039, D6751, D5453 and EN14214 for ICP and XRF analysis. Custom blended 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	Catalog No.	Catalog No.	Catalog No.
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

SULFUR STANDARDS

SULFUR IN CRUDE OIL

Designed primarily for XFR applications, **CONOSTAN®** offers a line of 10 Sulfur in Crude Oil Standards

ppm	Catalog No. (100 ml)
500	150-450-100
1000	150-450-105
1500	150-450-120
2500	150-450-110
5000	150-450-115
10,000	150-450-125
20,000	150-450-130
30,000	150-450-135
40,000	150-450-140
50,000	150-450-145

SULFUR IN DIESEL FUEL

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, custom concentrations are available. Contact us for more information.

ppm	In Diesel Fuel (100 g)	ppm	In Diesel Fuel (100 g)
0 (Blank)	150-410-012	5000	150-410-011
5	150-410-008	7500	150-410-021
10	150-410-001	10,000	150-410-004
25	150-410-013	15,000	150-410-006
50	150-410-009	20,000	150-410-007
100	150-410-002	30,000	150-410-022
500	150-410-010	40,000	150-410-023
750	150-410-018	50,000	150-410-024
1000	150-410-003		

SULFUR IN ISOCTANE BY UV-F

Designed for the Petroleum industry, **CONOSTAN®** Isooctane Standards are available in concentrations and formats chosen to meet the needs of your specific application.

Concentrations (ppm)	Description	Catalog No. (set of 7 x 10 ml vials)
0, 0.5, 1.0, 2.5, 5.0, 7.5, 10	Very Low Sulfur level	150-430-010
0, 5t.0, 10, 25, 50, 100, 250	Low Sulfur level	150-430-020
0, 50, 100, 250, 500, 750, 1000	High Sulfur level	150-430-030

SULFUR IN ISOCTANE BY XRF

Concentration (ppm)	Catalog No. (60 ml)
0 (Blank)	150-430-101
5	150-430-108
10	150-430-109
50	150-430-102
100	150-430-103
250	150-430-104
500	150-430-105
750	150-430-106
1000	150-430-107
Set of 7	150-430-100

SULFUR STANDARDS

SULFUR IN MINERAL OIL

Sulfur in Mineral Oil. This product line is designed for the calibration of XRF, ICP, and other analytical instruments according to various ASTM methods (such as D2622, D3246, D4294, D5453, D6334, and D6443).

Custom Concentrations. For concentrations not listed in the table, custom concentrations are available. Contact us for more information.

ppm	In Mineral Oil (100 g)	ppm	In Mineral Oil (100 g)
0 (Blank)	150-400-025	5000	150-400-020
10	150-400-001	7500	150-400-024
25	150-400-009	10,000	150-400-004
50	150-400-018	15000	150-400-005
100	150-400-002	20,000	150-400-008
250	150-400-010	25,000	150-400-012
500	150-400-019	30,000	150-400-014
750	150-400-023	40,000	150-400-016
1000	150-400-003	50,000	150-400-021

SULFUR IN RESIDUAL OIL

Residual Oil, a by-product of crude oil distillation, is often referred to as Fuel Oil (n°5, n°6, Bunker B or Bunker C) and serves as the fuel for many marine engines and industrial furnaces.

CONOSTAN® offers a wide range of standards in a true residual oil-based matrix to ensure performance in XRF and other applications.



ppm	Catalog No. (50 ml)	Catalog No. (100 ml)
2500	150-420-100	150-420-005
3500	150-420-105	150-420-010
5000	150-420-110	150-420-015
7500	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

Residual Oil CERTIFICATE OF ANALYSIS

CONOSTAN[®]
Oil Analysis Standards

Manufactured by SCP SCIENCE
21800 Clark Graham, Baie d'Urfe
Quebec, Canada H9X 4B6
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: CONOSTAN Single Element Standard, 0.25% Sulfur in Residual Oil
Catalogue Number: 150-420-005 / 150-420-100
Lot Number: **2.5K1415R**
Matrix: Residual Oil Base Material
Expiration Date: **12 months from date of shipment**
(see bottle for date of shipment)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: **2500 ppm ± 23ppm (µg/g)**
(0.25% ± 0.0023%)

Method of analysis and traceability:

This standard was prepared by weight measurements originating from a quantitatively certified element Concentrate and an assayed residual oil matrix*. Element concentration for this standard is based on the Concentrate certified value as well as the matrix assay, and was prepared to within the uncertainty value 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.

* The matrix was assayed using Ultraviolet Fluorescence instrumental analysis (per ASTM D5453) and results are traceable to NIST SRM 1819a. The quantified concentrate was verified per ASTM D5453 on equipment which was calibrated using NIST 1819a reference material

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Date: April 07th, 2015

Certification Approval:



Alketa Mixha
Conostan Production Manager



CHLORINE STANDARDS

Monitoring the chlorine content is important in various oils and oil products:

- In crude oils, chlorine is often naturally occurring, and may bias the sulfur measurement during crude oil blending or cause damage in the refining process.
- The balance of sulfur and chlorine is also critical for cutting fluid efficiency and lubricity to avoid damage to cutting tools and machined parts.
- Waste oil recycling as lubricant or fuel also requires accurate chlorine analysis.
- For these purposes, **CONOSTAN®** provides Chlorine Standards in mineral oil, 100 g, at various concentrations. Chlorine can also be combined with Sulfur to create a custom blend.

Features

ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date

Available in a 100 g format

Custom element additions are available

ppm	Catalog No.
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



CONOSTAN®
Oil Analysis Standards

Manufactured by SCP SCIENCE
21800 Clark Graham, Base of Lake
Quebec, Canada H9X 4B8
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: CONOSTAN Single Element Standard, 0.1% Chlorine
Catalogue Number: 150-200-003
Lot Number: 1005013
Matrix: Base Oil 75 cSt
Expiration Date: 12 months from date of shipment
(see bottle for date of shipment)

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:
Certified Concentration: 1000 ppm ± 3 ppm (µg/g)

Method of analysis and traceability: This standard was prepared by weight measurements originating from assayed element Concentrates. Element concentration for this standard is based on the Concentrate assay* value and was prepared to within the uncertainty value 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 Standard exists.

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Date: April 08, 2014

Certification Approval: 

Alketa Mixha
Conostan Production Manager

LUBRICANT CONDITION MONITORING STANDARDS



For decades, **CONOSTAN®** has served the lubricant condition monitoring industry with our line of premier Metallo-Organic Standards. **CONOSTAN®** now offers an expanding line of Lubricant Condition Monitoring Standards

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PartiStan™	230
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ASTM D 93 Nominal Flash Point (°C)	Catalog No. (80 ml)	Catalog No. (250 ml)
53	150-900-000	150-900-050
69	150-900-005	150-900-055
81	150-900-010	150-900-060
104	150-900-015	150-900-065
112	150-900-020	150-900-070
116	150-900-025	150-900-075
134	150-900-030	150-900-080
186	150-900-035	150-900-085
231	150-900-040	150-900-090
260	150-900-110	150-900-115

Description	Size	Catalog No.
FTIR operational test standard	100 g	150-702-001

FLASH POINT STANDARDS

Flash Point Standards for use in accordance with ASTM D93. Complete with a detailed Certificate of Analysis.

Features
ISO 17025 compliant Certificate of Analysis stating certified concentration value, uncertainty and expiry date
Available in a 80 ml and 250 ml formats

FTIR STANDARDS

Our FTIR operational test standard is a petroleum oil-based fluid that looks and handles like routinely tested used-oil samples. Unique for its long-term stability, it is designed for validating FTIR instrument performance over time to ensure repeatability and reproducibility.

LUBRICANT CONDITION MONITORING STANDARDS

PartiStan™ - Automatic Partical Counter Standards

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, recently updated (2010) procedure, secondary calibration requires a fluid traceable to NIST SRM 2806 - a suspension of 3.3 mg/L of ISO medium test dust in super-clean hydraulic fluid.

CONOSTAN® offers a full range of cost-effective products for the periodic calibration and verification of automatic particle counters, as per Clause 6 and Annexes A through E of ISO 11171. PartiStan™ secondary standards are compliant with ISO 11171 and directly traceable to NIST SRM 2806.

Product	Description	Size	Catalog No.
PartiStan™ 2806 Calibration Fluid	Designed for secondary calibrations of automatic particle counters (APCs) as per ISO 11171. PartiStan™ 2806 Calibration Fluid is a secondary calibration fluid traceable to NIST SRM 2806b. Shelf Life: Minimum of 12, up to 24 months from date of shipment	400 ml	150-701-001
PartiStan™ Resolution Standard	Bottle contains 10 µm (nominal size) latex spheres dispersed in hydraulic fluid. Designed for automatic particle counter (APC) resolution verification as per ISO 11171, annex D. Shelf life: 90 days from date of shipment	400 ml	150-701-002
PartiStan™ SCF (Super Clean Fluid)	PartiStan™ Super Clean Fluid is MIL-H-5606 Hydraulic Fluid (the base material for other PartiStan™ Standards) that is prepared to be free of particulate using a proprietary method. Complete with a Certificate of Analysis stating particle counts, this fluid is ideal as a blank or for dilution of "dirty" samples that would otherwise saturate an APC detector.	400 ml	150-701-003
PartiStan™ SCF (Super Clean Fluid)	PartiStan™ Super Clean Fluid is MIL-H-5606 Hydraulic Fluid (as found in other PartiStan™ Standards) that is prepared to be free of particulate using a proprietary method. Complete with a Certificate of Analysis stating particle counts, this fluid is ideal as a blank or for dilution of "dirty" samples that would otherwise saturate an APC detector.	3.78 L (1 gallon)	150-701-004
PartiStan™ UFTD (ultra-fine test-dust suspension in SCF)	Designed for verification of automatic particle counters (APCs), PartiStan™ UFTD Standard (100 mg/L dispersion of NIST 8632 dust) is ideal for Annexes A, B, C and E of the ISO 11171 standard. Supplied with a Certificate of Analysis providing certified values and uncertainty. Shelf life: Minimum of 12, up to 24 months from date of shipment	400 ml	150-701-005
PartiStan™ Resolution Fluid	Kit of three 400 ml bottles, each containing latex spheres of a different size, dispersed in hydraulic fluid. Designed for automatic particle counter (APC) resolution verification as per ISO 11171, Annex D. The nominal sizes are: 10 µm, 40 µm, 70 µm Shelf life: 90 days from date of shipment	3 x 400 ml	150-701-006

PartiStan™ CERTIFICATE OF ANALYSIS



Manufactured by SCP SCIENCE
21800 Clark Graham, Baie d'Urfe
Quebec, Canada H9X 4B6
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: CONOSTAN PartiStan™ SCF – Super Clean Fluid
 Catalogue Number: 150-701-004
 Lot Number: **86**
 Matrix: MIL-H-5606 Hydraulic Fluid
 Expiration Date: **May, 2017**

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Size >um (c)	Average Mean Particle Concentration (Particles/mL)
4	7.4
5	2.2
6	0.9
7	0.5
8	0.2
10	0.1
12	0.1
14	0.0

Method of analysis and traceability:

Particle size distribution obtained using an automatic particle counter calibrated per ISO standard 11171. Method used in determining particle counts conforms to NFPA/T2.9.11 R1-1999, without Aerosol OT. Counts are an average from 40 samples taken during filling of the bottles.

3.0 REFERENCE VALUES:

None

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Date: May 22, 2015

Certification Approval:

Alketa Mixha
Conostan Production Manager

LUBRICANT CONDITION MONITORING STANDARDS

VISCOSITY STANDARDS

The product reliability and stability that our customers trust in Metallo-Organic Standards are now available in General Purpose Viscosity Standards. These ISO 17025 certified, mineral oil based, Viscosity Standards were developed for calibration and verification of all types of viscometers.

All standards are traceable to NIST and manufactured in accordance with ISO Guide 34 at our A2LA accredited facility, and come complete with a Certificate of Analysis stating kinematic, dynamic and Saybolt viscosities as well as density at 9 different temperatures. Each standard carries a two year stability guarantee. See the following tables for details regarding typical product properties.

Custom viscosities are available.



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
N15,000	150-600-411	150-600-412	150-600-413	150-600-414	150-600-415
S30,000	150-600-421	150-600-422	150-600-423	150-600-424	150-600-425

Lubricant Condition Monitoring Standards

VISCOSITY STANDARDS

	KINEMATIC VISCOSITY IN MM ² /S (CENTISTOKES)*									
	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	---
N15,000	64000	40000	13000	11000	5300	2700	850	340	320	---
S30,000	---	80000	28000	23000	11000	5800	1700	670	640	---

*Typical values only, individual lots may vary slightly

	DYNAMIC VISCOSITY IN MPA.S (CENTIPOISE)*									
	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	---
N15,000	57000	36000	11000	9700	4700	2400	730	290	270	---
S30,000	---	72000	25000	20000	9700	5100	1500	570	550	---

Viscosity Standards

CERTIFICATE OF ANALYSIS

CONOSTAN[®]
Oil Analysis Standards

Manufactured by **SCP SCIENCE**
21800 Clark Graham, Baie d'Urfe
Quebec, Canada H9X 4B6
Tel: 1-514-457-0701 / 1-(800) 361-6820

Certificate of Analysis

1.0 DESCRIPTION: CONOSTAN Viscosity Reference Standard, N4000
 Catalogue Number: 150-600-391 / 150-600-392 / 150-600-393/ 150-600-394 / 150-600-395
 Lot Number: **1216**
 Matrix: White mineral oil
 Expiration Date: **October 2016**

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Temperature		Kinematic Viscosity mm ² /s (cSt)	Dynamic Viscosity mPa-s (cP)	Density (g/ml)	Saybolt Viscosity (SUS)
°C	°F				
20.00	68.00	19346	17098	0.8838	
25.00	77.00	12285	10822	0.8809	
37.78	100.00	4262	3725	0.8738	N/A
40.00	104.00	3606	3147	0.8726	
50.00	122.00	1765	1531	0.8671	
60.00	140.00	925.6	797.5	0.8617	
80.00	176.00	310.2	263.9	0.8505	
98.89	210.00	134.3	112.8	0.8399	626
100.00	212.00	128.6	107.9	0.8392	

*Expanded Uncertainty (%) at Temperatures :

Viscosity Range mm ² / s (cSt)	<=40 °C		>40 °C	
< 10	±0.28		±0.27	
10 to 100	±0.32		±0.28	
100 to 1000	±0.37		±0.31	
1000 to 10000	±0.36		±0.30	
10000 to 100000	±0.46		±0.39	

Method of analysis and traceability:

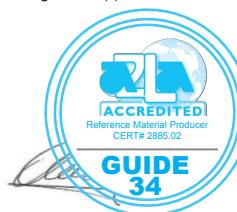
This viscosity standard has been prepared according to ASTM methods D445, D446 and corresponding ISO methods 3104 and 3105. Kinematic viscosities have been determined using Master Viscometers calibrated according to ASTM method D2162 and based on the established kinematic viscosity of 1.0034mm²/s for distilled water at 20.00°C 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). 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:

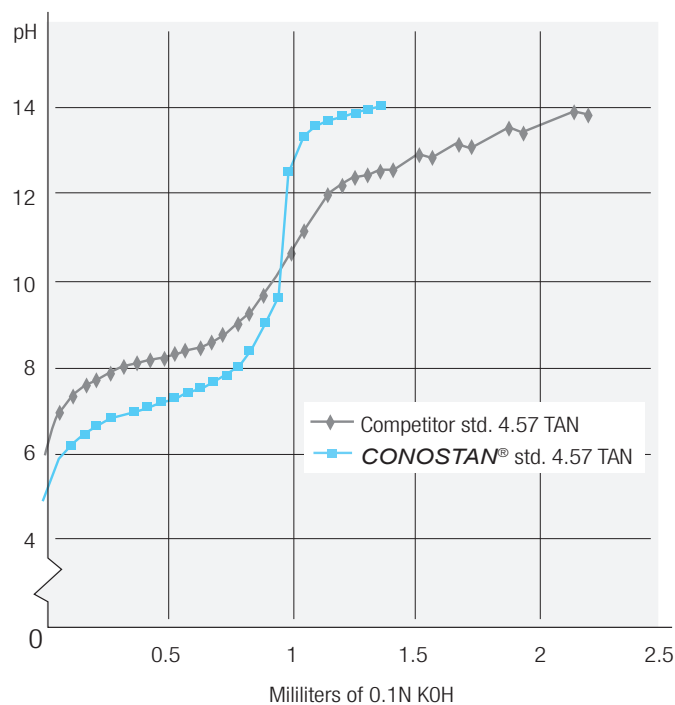
Certification Approval: Alketa Mixha, Conostan Production Manager
 Certification Date: October 9, 2014



LUBRICANT CONDITION MONITORING STANDARDS

TOTAL ACID NUMBER (TAN) STANDARDS

Comparison of Titration Curves



With the **CONOSTAN**® family of TAN Standards, titration curves have more prominent inflection points and higher pH differentials than with other brands. This provides a lower uncertainty when calibrating titrators.

Description	Size	Catalog No.
0.05 mg/g KOH	75 g	150-800-005
0.1 mg/g KOH	75 g	150-800-011
0.5 mg/g KOH	75 g	150-800-051
1.0 mg/g KOH	75 g	150-800-101
1.5 mg/g KOH	75 g	150-800-151
2.0 mg/g KOH	75 g	150-800-205
2.5 mg/g KOH	75 g	150-800-255
3.0 mg/g KOH	75 g	150-800-305
4.5 mg/g KOH	75 g	150-800-455

TOTAL BASE NUMBER (TBN) STANDARDS

Each **CONOSTAN**® TBN standard is formulated to provide a strong leveraging influence on the titration curve creating dramatic and easy to determine inflection points. Concentration uncertainties for TBN are less than 1%.

Description	Size	Catalog No.
1.0 mg/g KOH	75 g	150-801-011
3.0 mg/g KOH	75 g	150-801-031
6.0 mg/g KOH	75 g	150-801-065
10.0 mg/g KOH	75 g	150-801-105
15.0 mg/g KOH	75 g	150-801-155
30.0 mg/g KOH	75 g	150-801-305
40.0 mg/g KOH	75 g	150-801-405
70.0 mg/g KOH	75 g	150-801-705

TAN Standards

CERTIFICATE OF ANALYSIS

CONOSTAN®
Oil Analysis Standards

Certificate of Analysis

1.0 DESCRIPTION: CONOSTAN Acid Number Standard, (4.5 mg KOH/g)

Catalogue Number: 150-800-455
Lot Number: 045D100
Matrix: White Mineral Oil
Expiration Date: October, 2015

2.0 CERTIFIED VALUES AND ASSOCIATED UNCERTAINTY:

Certified Concentration: 4.43 mg KOH/g (+/-2%)

Calibration Temperature: 22 +/-3°C

Method of analysis and traceability: This standard has been tested by potentiometric titration in accordance with ASTM D 664 and it is traceable to NIST 84L.

* The uncertainty of the certified values have been calculated from applicable uncertainty contributors (u_c). 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.

Additional notes:

According to the ASTM D664 method, the titrant addition should be 0.05ml and 0.01ml at the region of the inflexion point. In order to obtain better accuracy and precision working with this standard, we recommend the use of burettes with a minimum graduation of 0.005ml or less. If not possible, use of a titrant with a concentration of less than 0.1N is recommended for more accurate results. A time of 30 to 60 seconds between two additions of titrant is recommended in order to obtain stable potential values and to get a smooth titration curve. By using this approach the repeatability and reproducibility of our standards is within 1-2%.

3.0 REFERENCE VALUES:

None.

4.0 APPROVAL AND DATE OF CERTIFICATION:

Certification Approval: Aiketa Mixha, Conostan Production Manager

Certification Date: April 14, 2011

