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Evry, the December 14th, 2007

NSL Analytical Services

4450 Cranwood Parkway
CLEVELAND, OHIO 44128
U.S.A.

Attention to Mr Ronald J. OLCHOVY
Quality Leader

Your correspondent : Mr. Khaled ZAAG

Subject : Laboratory Qualification – FAL 525

Dear Sir,

After review of your quality organisation, technical capabilities and the survey of your laboratory conducted by M. Khaled ZAAG the 8 and 9th of November 2007, we are pleased to inform you that you have been qualified as a testing laboratory according to Snecma procedure PRO-0430 for the tests defined on the Laboratory Approval Sheet (FAL) n° 525 enclosed with the audit report.

Continuance of qualification depends on conditions outlined in PRO-0430. Constantly the approval can be taken back or suspended by Snecma.

We would like thank you for the organisation of this visit, for your cooperation and for the warm welcome that you extended to our representative.

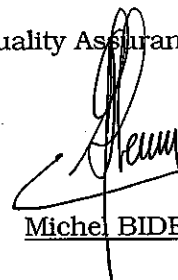
Yours sincerely.

The auditor



Khaled ZAAG

The Quality Assurance Manager



Michel BIDEAU

PJ.: - Report YQL n° 234/07
- FAL 525

Copy : Groupe APL QPL
Qualité Approvisionnement
Auditeurs – Sté ITS (A. Bergts)

3. Organisation

The organization of the laboratory and its position in the parent organization are defined. See appendix 2.

| Secteur | Avis | Constats |
|--|------|---|
| Quality manual and Général procédures for organisation | S | Quality manuel is approved by the quality leader and the president. It is formalise in compliance with the standard ISO/IEC 17025. General procedures are listed in the procedure listing NSL 5040 (NSL 5000 series). |
| Management of technical documents | S | Technical procedures are listed in the procedure listing NSL 5040. Works instructions are listed in the work instructions listing NSL 5040. |
| Calibration and verifications | S | Calibration procedures NSL 3000 series are listed in the procedure listing NS 5040. All facilities are calibrated. |
| Metrology | S | Sub-contracting. Procedures : NSL 5009 : purchasing NSL 5054 : approved services and supplies listing |
| Thermical treatment Treatments on samples | N/A | / |
| Sampling and sample machining | S | Sampling is conducted in a accordance with sampling plan and procedures : - NSL 5052 : sample handling, storage and chipping - NSL 5053 : sample routing : filling and storage |
| Traceability | S | Mesuring, test and calibration equipment is traceable through an unbroken chain of calibration or comparaison to the international system of unites. |
| Storage | S | Conforme to the aeronautics requirements. |
| Quality insurance : Round Robin | S | Participation to the PTP organized by Snecma, GE and Airbus. |
| Sub-contracting test | S | The results of test conducted by subcontractors are clearly indicated in the test report. |

Opinion : **S** : Satisfying **A** : to be improved **R** : Inacceptable or refused **N/A** : Non applicable
C : Correctives actions non suspensives for agrément **D** : Correctives actions suspensives for agrément

| Secteur | Avis | C o n s t a t s |
|--------------|------|--|
| Equipment | S | <ul style="list-style-type: none"> • Checked and calibration prior to use • Clearly identified • Work instruction formalized |
| Other points | A | <ul style="list-style-type: none"> • Internal audits Procedure 5044 "Quality system audits" No technical audits concerning performing tests |
| | S | <ul style="list-style-type: none"> • Non-standard method are : Development by a qualified staff Subject prior agreement of the customer |
| | S | <ul style="list-style-type: none"> • Estimation of mesurement incertainly : There is a procedure to access the uncertainly of the measurements taken by the laboratory NSL 5065 : estimation of uncertainly of mesurement. |

Opinion : **S** : Satisfying **A** : to be improved **R** : Inacceptable or refused **N/A** : Non applicable
C : Correctives actions non suspensives for agrément **D** : Correctives actions suspensives for agrément

4. Instrumentation

Appendix 1

- Spectrometry
- Masse spectrometry
- Chromatography
- Thermal analysis
- Microscopy
- Physical characterization
- Other methodes



SAFRAN

N° FAL 525

Base@docBasile YQL/00620

Code Casq-it : En cours de création/In progress

Fiche de qualification Laboratoire Laboratory Qualification Certificate

YQL n° 234/07

Date : Décembre/December 2007

Snecma - Groupe SAFRAN

Etablissement de Courcouronnes - 10, Allée du Brévent CE 1420 - COURCOURONNES - 91019 EVRY CEDEX

**prononce la qualification du laboratoire suivant la procédure PRO-0430 /
pronounces the laboratory qualification according to PRO-00430**

NSL Analytical Services
4450 Cranwood Parkway
CLEVELAND, OHIO 44128
U.S.A.

pour les essais suivants / for the following tests :

| Code | Type d'essai/Tests | Domaine d'application/ Application field |
|------|---|---|
| D | Analyse chimique par voie humide/Wet chemical analysis | Spectre produit/spectrum produced by : baird 2000 DC Arc low RES, TJA Atomcop 2000 DC Arc, Bacharach Coleman Mercury analyzer model 50D Morphologie des poudres/Powders morphologies |
| F | Analyse par spectrométrie/Spectrometry analysis | |
| F1 | Analyse par Fluorescence X / X-ray fluorescence analysis | |
| F2 | Analyse par ICP / ICP analysis | |
| F3 | Analyse par émission optique / Optical emission | |
| F4 | Analyse par absorption atomique flamme / Flame atomic absorption | |
| F5 | Analyse par absorption atomique four (oligo éléments) /Furnace atomic absorption (trace elements) | |
| F6 | Autres analyses par spectrométrie(à préciser) / others spectrometry analysis(to be specified) | |
| G | Dosage du carbone/carbon Analysis | |
| H | Dosage du soufre/Sulfur Analysis | |
| I | Dosage de l'hydrogène/Hydrogen Analysis | |
| J | Dosage de l'azote/Nitrogen Analysis | |
| K | Dosage de l'oxygène/Oxygen Analysis | |
| L2 | Microscope électronique à balayage (MEB)/Scanning Electronic microscope (SEM) | |

Qualification prononcé sur la base
Qualification based on

**De l'audit réalisé en 2007 par Snecma /
Audit carried out in 2007 by Snecma**

Date de fin de validité de la Qualification/ End of the Qualification

31 Décembre 2010/December 31st 2010

L'auditeur

Khaled ZAAG

Le Responsable Assurance Qualité

Michel BIDEAU

Appendix 1

| Instrument | Serial Number | Manufacturer | Capacity | NSL SOP | No of Tests Run | Start Up Year | Test Codes |
|---------------------------|---------------------------------|----------------------|---|------------|-----------------|---------------|-------------------------|
| DRCe MS | W0980406 | Perkin Elmer | 0.001ug/l-100mg/l (expandable) | 3046A | 3198 | 2004 Sept. | F2 |
| Elan 6000 MS | 4219710 | Perkin Elmer | 0.001ug/l-100mg/l (expandable) | 3036Rev A | 11802 | 1999 | F2 |
| Elan 5000a MS | 226930950 | Perkin Elmer | 0.10-500ug/l | 3010 Rev D | 9078 | 1994 | F2 |
| Elan 5000b MS | 174921150 | Perkin Elmer | 0.10-500ug/l | 3010 Rev D | 9418 | 2002 | F2 |
| Leeman Profile ICP | 5024 | Teledyne Leeman Labs | 0.05ppm to macro% | 3050 | 6233 | 2005 Dec. | F2 |
| Optima ICP | 069N8022503 | Perkin Elmer | ppb to macro% | 3035Rev A | 5326 | 1998 | F2 |
| AAGF | 8119 | Perkin Elmer | 0.005ppm-50ppm | 3049 | 527 | 2005 March | F4,F5 |
| RH404 | D3228 F3696 | Leco Corporation | Hydrogen-1ppm~150ppm, 0.5%reduced sample | 3039 Rev B | 940 | 2000 | I |
| CS444LS | D3798 F3810 | Leco Corporation | Carbon 20ppm to~30%,Sulfur 1ppm to~3% | 3040A | 6223 | 2000 | G |
| TC436 | D3018 F2008 | Leco Corporation | Nitrogen-10ppm to~40%,Oxygen-10ppm to~3% | 3047 | 1813 | 2005 Feb. | J,K |
| TC436DR | D3664 F3942 | Leco Corporation | Nitrogen-10ppm to~40%,Oxygen-10ppm to~50% | 3007RevE | 3264 | 1997 | J,K |
| SPECTROLAB OES (SPARK) | LAVWA18B | Spectro | 2ppm to~70% | 3045 | 14068 | 2002 Dec. | F3 |
| RIGAKU 3271 XRAY 327LE | MR 15005 | Rigaku | 10ppm to ~95% | 3011 Rev B | 2681 | 1990 | F1 |
| BAIRD 2000 DC ARC LOW RES | 2934 | Baird | 10ppm to 5000ppm | 3021 Rev D | 7524 | 1996 | F6 |
| TJA ATOMCOMP 2000DC ARC | 11021 | TJA | 10ppm to 5000ppm | 3041 Rev C | 3087 | 2002 | F6 |
| CVAA | 33-7003/FY1002 BACARACH COLEMAN | | 0.2 ppm to25ppm (expandable) | 3017RevB | 960 | 2002 | F6 |
| DX120 | 98040514 | Dionix Corp. | 0.10ppm to macro %(expandable) | 3032 RevA | 86 | 1998 | Anion Chromatography |
| DX500 | 98090417 | Dionix Corp. | 0.10ppm to macro %(expandable) | 3032 RevA | | 2005 Feb. | Anion Chromatography |

| Instrument | Serial Number | Manufacturer | Capacity | NSL SOP | No of Tests Run | Start Up Year |
|--|--------------------------------------|--------------------------------------|--|----------------|-----------------|---|
| Wilson Tukon Micro Hardness LECO Hardness LCR-500 | MO11694 LCR0056 | Wilson Leco Corporation | 1g-1000g 0-150Kg | 8002B 8001A | 47 82 | L4 2003 July M1,M2,M3 2006Feb. |
| AMRAY 1830 I SEM EDS OXFORD DETECTOR | 18538001 33999-1390-01 | AMRAY(Aug. 1987) OXFORD(Feb.2002) | 0-30KV Upto 4inch sample size | 8003 | 84 235 | L2,L2A,L2B,L3 L2B 2003 Feb. 2003 Feb. |
| FTIR MICROSCOPE 300 | 73807 | Perkin Elmer | 100ppm-100% | 3002 | 172 | F6, Polymer Characterization 2006 Sept. |
| FTIR STAGE CONTROLLER | 70265 | Perkin Elmer | 100ppm-100% | 3002 | | F6, Polymer Characterization 2006 Sept. |
| VARIAN GAS CHROM. 4000 | 12596 | Varian | pg/l to mg/l concentrations(expandable) | 3051 | 2 | Organic Compound Chromotography 2005 Dec. |
| VARIAN GC 4000 MS | 262 | Varian | pg/l to mg/l concentrations(expandable) | 3051 | 218 | Organic Compound Chromotography 2005 Dec. |
| SPECTRONIC GENYSIS 5 | 3V8A027002 | Spectronic | 10ppm to macro %(expandable) | 3031 Rev A | 513 | 1998 Feb. F6 |
| ORION Specific ION ElectrodeEA940 | TVT85A TYP1.785.0010/ NR.03136 | ORION METROHM | 0.10ppm to macro %(expandable) | 4018 | 3 | D |
| IETROHM 785DMP TRINO TITRATE | | | 0.5%-100% | 3038A/4017A | | D |
| NITON XRAY GUN(mod xli797kqwz) ELECTROPLATER s79480 ELECTROPLATER-1000 | 11948 7719001D 7800101 | NITON Sargent Welch EBERBACH | ppm to macro% (expandable) 1% to 100% 1% to 100% | 4004 | 1406 | F1 D D 2006 |
| UNIMET MICROSCOPE NIKON MICROSCOPE EPIPHOT NIKON MICROSCOPE | SMZ-2T | UNIMET NIKON NIKON | UP TO 600X UP TO 400X UP TO 60X | | | 2003 2007 2003 XL1,XL3 XL1,XL3 XL1,XL3 |

No of Tests

| Run | No of Tests |
|------|-------------|
| 205 | |
| 155 | |
| 2108 | |
| 1429 | |
| 114 | |
| 858 | |
| 582 | |
| 73 | |
| 2898 | |

ASTM E 3
ASTM E 8
BY DIFFERENCE
LEACH/IC
LEACH -IC-AET
PARR/IC
PYRO/IC
PYRO/SPEC. ELECTRODE
WET CHEM

Quick Guide to Instrumentation

Spectroscopy

- ❖ FTIR (ATR, Solution, Pellet)
- ❖ UV-VIS-Near IR
- ❖ Raman-Near IR
- ❖ X-Ray Diffraction (XRD)
- ❖ X-Ray Fluorescence (XRF)
- ❖ Energy Dispersive X-Ray Spectroscopy (EDX or EDS)
- ❖ X-Ray Photoelectron Spectroscopy (XPS or ESCA)
- ❖ Nuclear Magnetic Resonance (NMR)
- ❖ DC Arc Emission Spectroscopy (DCA)
- ❖ Spark Optical Emission Spectroscopy (OES)
- ❖ Inductively Coupled Plasma-OES (ICP-OES)
- ❖ Atomic Absorption with Graphite Furnace and Flame (AA)

Mass Spectrometry

- ❖ GC/MS-MS
- ❖ ICP-MS
- ❖ Matrix Assisted Laser Desorption (MALDI-MS)
- ❖ Chemical Ionization (CI-MS)
- ❖ Electrospray Ionization (ESI-MS)

Microscopy

- ❖ Optical Microscope with Digital Images
- ❖ Scanning Electron Microscopy (SEM)
- ❖ Transmission Electron Microscope (TEM)
- ❖ Atomic Force Microscope (AFM)

Physical Characterization

- ❖ Tensile/Compression/Flexural Analyzers
- ❖ Impact Testers
- ❖ Dynamic Mechanical Analyzer (DMA)
 - ◆ Tension
 - ◆ Torsion
 - ◆ Dynamic Flex
- ❖ Heat Distortion Analyzer
- ❖ Vicat Softening Point
- ❖ Hardness/Micro hardness analyzers
- ❖ Particle Sizing Instruments
 - ◆ Laser Diffraction
 - ◆ Capillary Hydrodynamic Fractionation (CHDF)
 - ◆ Sedigraph
 - ◆ Sieves

Chromatography

- ❖ Gas Chromatography (FID)
 - ◆ GC/Mass Spectrometry
 - ◆ Pyrolysis GC/MS
- ❖ Ion (Anions, Cations)
- ❖ Liquid Chromatography
 - ◆ High Pressure - HPLC (Diode Array, ELS, UV)
 - ◆ Gel Permeation - GPC (RI)
- ❖ Separations (TLC, SPE, Soxhlet)

Thermal Analysis

- ❖ Thermogravimetric Analysis (TGA)
- ❖ Differential Thermal Analysis (DTA)
- ❖ Differential Scanning Calorimetry (DSC)
- ❖ Thermomechanical Analysis (TMA)
- ❖ Dielectric Thermal Analysis (DEA)
- ❖ Melt Flow Index (MFI)

Other Methods

- ❖ Karl Fischer
 - ◆ Volumetric
 - ◆ Coulometric
- ❖ Flash Point Apparatus (Closed Cup)
 - ◆ Seta
 - ◆ Pensky-Martens
- ❖ Capillary Tube Melting Point Apparatus
- ❖ Classical Wet Chemistry
- ❖ LECO Combustion (O, N, H, C, S)

Appendix 2

