MCERTS CERTIFICATION

Chromatotec®

QUALITY STRATEGY

- High level of quality for product and service with continuous improvement through certifications
- Presence in CEN/TC264/WG12: European benzene and VOCs working group

CERTIFICATIONS timeline

- *Chronology*

1996


2006

2009

2009

2010

2012

2013

- *ISO 9001 (July 2014)*

- *NEW PERSPECTIVE :*
  - ATEX CERTIFICATION
  - ISO 17025

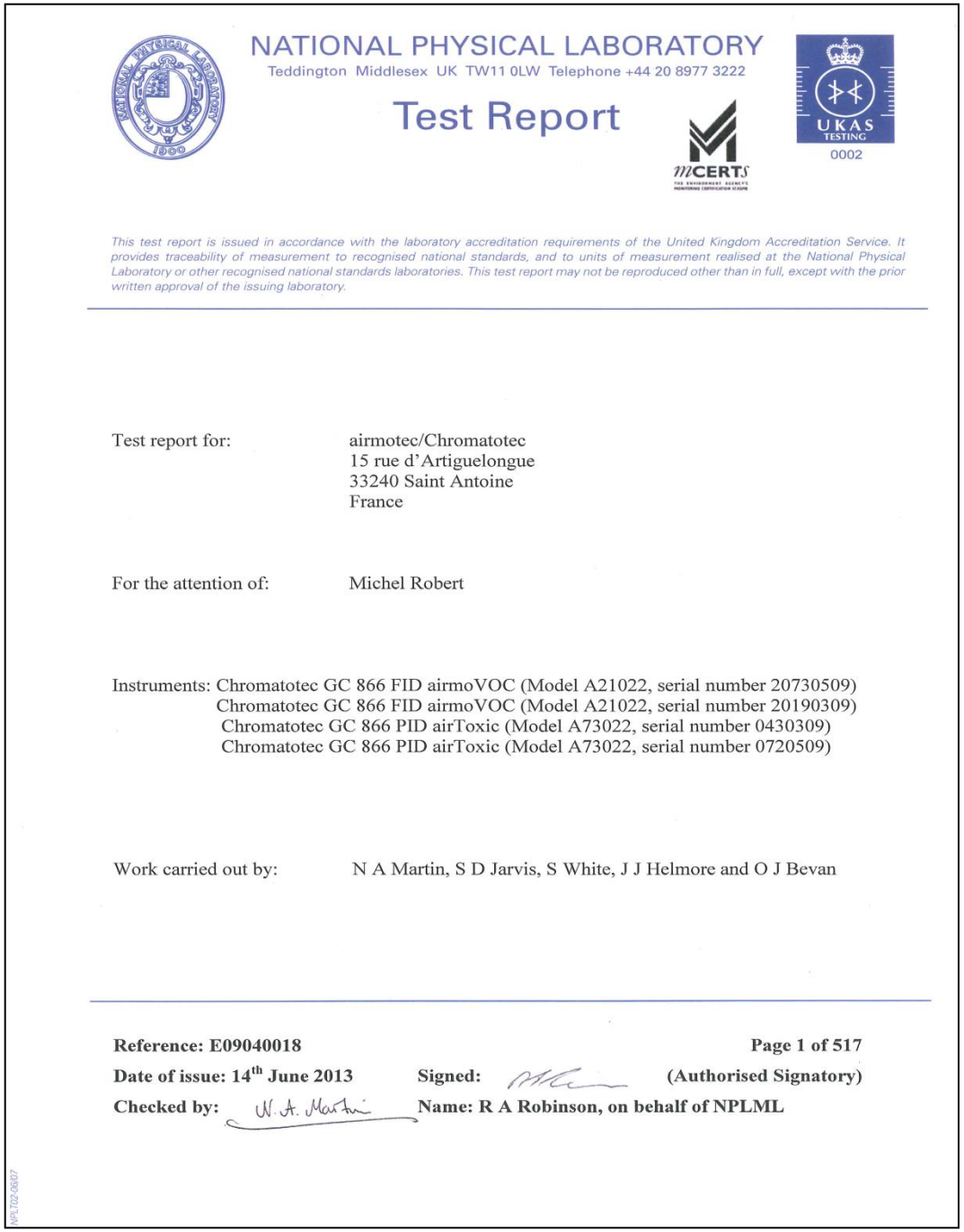
MCERTS CERTIFICATION: The tests

- Compound tested in priority: Benzene
- Range of certification : 0.5 to 45 µg/m3 or 0,15 to 15 ppb
- Cabinet sent to National Physical Laboratory (NPL, London) with 4 analysers : 2 FID (airmoVOC) and 2 PID (airtoxic):
  - *Compounds from 30 VOC European list) relating to ozone in ambient air*
  - *airmoVOC FID) – measurement of 12 VOCs (30 compound european list : EU Directive (2002/3/EC) (m&p xylen = one compound)*
  - *airTOXIC (PID) – measurement of 5 compounds (BTEX)*

IMPORTANTS POINTS ABOUT THE CERTIFICATES

- TO BE ACCEPTED AT EUROPEAN LEVEL:
  - *ISO 17025 (NPL) European laboratory best practices accredited to conduct benzene EN14662-3 tests (laboratory and field tests) under UKAS organization in England*
  - *EN 15267 -1 (SIRA) product certification general principles*
  - *EN 15267-2 (SIRA and manufacturer) design changes management*
- AQUILA:
  - *AQUILA is the European organization based at ISPRA (Italy) that includes all the national reference laboratories. They can deliver informations about certificates*
  - *The reference laboratories , after review of report and certificate , have the role to declare if the Instruments that is really accredited for the measurements in conformity with the standards involved*
- OUR DISTRIBUTORS ;
  - *They need to identify and contact their reference laboratory and present the report and certificate for acceptation in their national official list*
- OUR MCERTS MODELS: A21022 (FID) and A73022 (PID) with or without internal calibration

Available in our web site



NATIONAL PHYSICAL LABORATORY

Teddington Middlesex UK TW11 0LW Telephone +44 20 8977 3222

Test Report

UKAS TESTING 0002

This test report is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This test report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

Test report for: airmotec/Chromatotec
15 rue d'Artiguelongue
33240 Saint Antoine
France

For the attention of: Michel Robert

Instruments: Chromatotec GC 866 FID airmoVOC (Model A21022, serial number 20730509)
Chromatotec GC 866 FID airmoVOC (Model A21022, serial number 20190309)
Chromatotec GC 866 PID airToxic (Model A73022, serial number 0430309)
Chromatotec GC 866 PID airToxic (Model A73022, serial number 0720509)

Work carried out by: N A Martin, S D Jarvis, S White, J J Helmore and O J Bevan

Reference: E09040018 **Page 1 of 517**

Date of issue: 14th June 2013 **Signed:** **(Authorised Signatory)**

Checked by: W. A. Martin **Name: R A Robinson, on behalf of NPLML**

17/07/2014

Available in our web site

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

GC 866 FID airmoVOC (Model A21022)

manufactured by:

Chromatotec® / airmotec
15, Rue d'Artiguelongue
33240 Saint'-Antoine
France

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Continuous Ambient Air Quality Monitoring Systems, Version 8, dated June 2012;
EN 15267-1:2009, EN 15267-2:2009 & EN 14662-3:2005

Certification Ranges :

Airborne Benzene Vapour: 0 to 50 µg/m^3

Project No:	16A0385A
Certificate No:	Sira MC130231/00
Initial Certification:	26 July 2013
This Certificate Issued	26 July 2013
Renewal Date:	25 July 2018

R Cooper | Eng MInst MC

MCERTS is operated on behalf of the Environment Agency by

Sira Certification Service
12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK DA1 4AL
Tel: +44 (0)1322 520500 Fax: +44 (0)1322 520501

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Available in our web site

PRODUCT CONFORMITY CERTIFICATE

This is to certify that the

GC 866 PID airToxic (Model A73022)

manufactured by:

Chromatotec® / airmotec
15, Rue d'Artiguelongue
33240 Saint'-Antoine
France

has been assessed by Sira Certification Service
and for the conditions stated on this certificate complies with:

MCERTS Performance Standards for Continuous Ambient Air Quality Monitoring Systems, Version 8, dated June 2012;
EN 15267-1:2009, EN 15267-2:2009 & EN 14662-3:2005

Certification Ranges :

Airborne Benzene Vapour: 0 to 50 µg/m^3

Project No:	16A0385A
Certificate No:	Sira MC130230/00
Initial Certification:	26 July 2013
This Certificate Issued	26 July 2013
Renewal Date:	25 July 2018

R Cooper | Eng MInst MC

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Sira Certification Service
12 Acorn Industrial Park, Crayford Road, Crayford
Dartford, Kent, UK DA1 4AL
Tel: +44 (0)1322 520500 Fax: +44 (0)1322 520501

SUMMARY OF RESULTS

- Article published in IET annual buyer's guide

2010/04/28 at 11h28 min

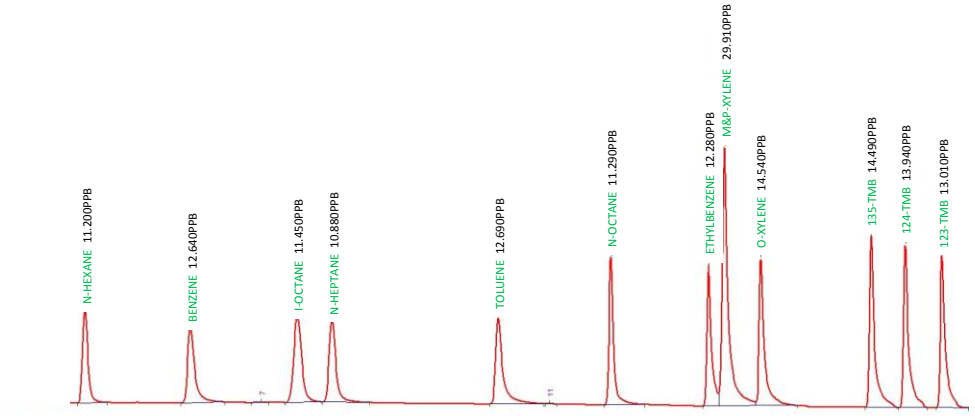

FIGURE 1: TYPICAL CHROMATOGRAPH OBTAINED DURING THE TESTS CARRIED OUT BY THE NPL. THE 13 ANALYZED COMPOUNDS ARE: N-HEXANE; BENZENE; 2,2,4-TRIETHYL PENTANE (I-OCTANE); N-HEPTANE; TOLUENE; N-OCTANE; ETHYL-BENZENE; M&P-XYLENE; O-XYLENE; 1,3,5-TRIMETHYLBENZENE; 1,2,4-TRIMETHYLBENZENE; 1,2,3-TRIMETHYLBENZENE.

SUMMARY OF RESULTS

- Article published in IET (International Environment Technology) annual buyer's guide 2013

- **TABLE 1: SUMMARY RESULTS FOR THE 15 TESTS CARRIED OUT ON THE INSTRUMENTS WITH BENZENE.**

Performance characteristic Laboratory tests	Performance criterion	Test result (airmoVOC Serial number 20190309)	Test result (airmoVOC serial number 20730509)	Test result (airTOXIC serial number 20430309)	Test result (airTOXIC serial number 20720509)
Lack of fit, largest residual	< ± 5 %	2.12 %	2.54 %	4.60 %	4.42 %
Repeatability at 0.5 µg m^{-3}	< ± 0.3 µg m^{-3}	0.06 µg m^{-3}	0.20 µg m-3	0.02 µg m-3	0.03 µg m-3
Repeatability at limit value	< ± 5 %	1.84 %	1.42 %	3.74 %	1.34 %
Influence of the interference from ozone	< ± 5 %	1.19 %	1.25 %	0.87 %	1.00 %
Influence of the interference from sum of possible interfering organic compounds at span value	< ± 5 %	3.87 %	4.58 %	1.81 %	2.81 %
Influence of the interference from relative humidity	< ± 4 %	0.001 %	0.001 %	0.78 %	1.16 %
Sensitivity coefficient for the influence of surrounding temperature at span value	< ± 0.2 % K^{-1}	0.03 % K^{-1}	0.08 % K-1	0.16 % K-1	0.10 % K-1
Sensitivity coefficient for the influence of ambient pressure at span value	< ± 1 % kPa^{-1}	0.18 % kPa^{-1}	0.10 % kPa-1	0.26 % kPa-1	0.15 % kPa-1
Sensitivity coefficient for the influence of voltage a span value	< ± 0.2 % V^{-1}	0.022 % V^{-1}	0.010 % V-1	0.031 % V-1	0.027 % V-1
Short term drift (24 hours) at span value	< ± 5 %	1.82 %	0.15 %	0.96 %	0.79 %
Carry over	< 10 % of limit value for second analysis (=0.5µg m^{-3})	0.36 µg m^{-3}	0.41 µg m-3	0.35 µg m-3	0.37 µg m-3

SUMMARY OF RESULTS

- Article published in IET annual buyer's guide

Performance characteristic Field tests	Performance criterion	Test result (airmoVOC Serial number 20190309)	Test result (airmoVOC serial number 20730509)	Test result (airTOXIC serial number 20430309)	Test result (airTOXIC serial number 20720509)
Reproducibility standard deviation	< ± 0.25 µg m-3	0.13 µg m-3	0.13 µg m-3	0.08 µg m-3	0.08 µg m-3
Long term drift at span value (14 days)	< ± 10 %	1.54 %	4.42 %	7.52 %	4.68 %
Maintenance interval	> 14 days	90 days	90 days	90 days	90 days
Availability	> 90 %	96.3 %	99.7 %	100 %	99.9 %

Expended uncertainty calculation

	Criterion (%)	Result (%)
FID 1	< 25%	15,0
FID 2	<25%	17,1
PID 3	< 25%	19,6
PID 4	< 25%	12,1

TEST REPORT OF COMPETITORS SYNSPEC

- **Analyse of Test report of SYNSPEC (LUBW):**
  - ***Tests of Influence of ambient pressure have not been done***
  - ***Tests of ozone : 90 µg/m3 instead of around 40 µg/m3***
  - ***Tests of humidity : 90 µg/m3 instead of around 40 µg/m3***
    - ***Higher concentration improves the criteria that is given in %***
  - ***The test of interference of organic compounds, CCl4 is not interferent for concentrations < 1.5 µg/m3 but minimum is 3 µg/m3***

They claim to be in conformity with EN 14662-3 but not true

- **To avoid this situation, AQUILA is trying to publish a guide of recommandation on how to accept a certified analyser in their national list**

TEST REPORT OF COMPETITORS
AMA / ENVIRONEMENT SA

- **AMA**
  - ***NO test report available***
  - ***Only summary made by LUBW lab, TUV institute and certificate by UBA***
  - ***Nobody can analyse the results***

✓ENVIRONNEMENT SA
- **✓NO test report available**
- **✓Certificate available by TUV**

<u>Conclusion :</u> We are the only manufacturer to complete strictly the standard 14662-3 done by lab ISO 17025 for EN14662-3 standard and certified in accordance with EN 15267 - 1 et -2 but the only judge to state this fact are the referent laboratories

<u>For information:</u> The Referent lab of Spain exclude AMA and Synspec from their list of analysers because the labs are not 17025 for benzene analysis by EN 14662-3

WG 12

- I am a member of the WG12 : I represent french delegation under AFNOR organisation
- WHY : to try to influence the revision of standard that are too much in favor of our competitors : exemple : CCl4
- WHAT IS WG12 : CEN / TC 264 / WG12 : ambiant air monitoring on SO2, NO2, O3, CO and benzene european working group
- This working group has in charge the review of the different standard concerning ambiant air monitoring : SO2, NO2, O3, CO and benzene, or create new norms if necessary

NEW PERSPECTIVES
EN 14662-3 modifications

- Revision main points
  - *Influence of temperature : Criteria too strict : 0.2%/ degree if short windows of temperature: under the level of repetability (it is a problem for the future)*
  - *Interferents CCl4 has been removed from the list, only in a remark (because CCl4 is not allowed in Europe). Only our analyser is able separate CCL4 from Benzene*
  - *N Butanol is introduced in the list*
  - *No more ozone test*
  - *Pressure test is maintained*
  - *EN 15267-2*

NEW PERSPECTIVES
EN 14662-3 modifications

- *Calculation principle more strict (removing of the famous square root 3) but we pass all the test with new calculation so the test will be available for new version*
- *Probably to validate the new version, 2 new tests will be necessary on temperature and interference because new conditions of tests*
- *No official information at this time*

NEW STANDARD ON BEHALF OF WG12

- New project of Standard: analysis of ozone precurors (VOCs)
  - *certification of analysers that are able to analyse the 30 VOC European list*
  - *performance criteria and uncertainties*
- The suggestion comes from our MCERTS Test
- A budget from CEN will be defined for lab and field studies before writing the standard
- Next Meeting in Madrid at Instituto Carlos III in October 2014

SITUATION AFTER ONE YEAR

- MCERTS upgrade kit containing all the upgrade made following the tests
- France (Ecole des Mines de Douai) validate our certification for the analyser list issued by Ministery of Environment
- Spain (Instituto Carlos III) is under study of our MCERTS report
- Annual MCERTS audit next month
  - *Focus on EN 15267-2 design changes management*

Thank you for your attention !