IA – CERTIFICATE

(Supplemented to include all the SANS 1515 performance approvals)

(IN TERMS OF REGULATION 21.17.2 OF THE MINERALS ACT (INCORPORATION THE MINE HEALTH AND SAFETY ACT) AND REGULATION 9 (1) OF THE ELECTRICAL MACHINERY REGULATIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT)

ALTAIR 4X Multi gas Detector

This document is based on and must be read in conjunction with certificates **IECEx TSA 08.0013X & FTZU 07 ATEX 0169X** and **MASC reports 18-0462 (SANS 1515-1) and 19-8151 (SANS 1515-3-1 and SANS 1515-4-1)**

Further to your request, we have evaluated the supplied documentation. The following is applicable:

Description	**Detail**	
Requested By :	Mine Safety Appliances Co., Instrument Division P.O. Box 427, Pittsburgh, PA 15230 1000 Cranberry Woods Drive Cranberry Twp PA 16066 USA	
Equipment :	**ALTAIR 4X Multi gas Detector**	
Manufacturer :	Mine Safety Appliances Co., Instrument Division P.O. Box 427, Pittsburgh, PA 15230 1000 Cranberry Woods Drive Cranberry Twp PA 16066 USA	
Model(s) / Type(s) :	**ALTAIR 4X**	
Rating :	Ex ia I IP67 Ex ia da IIC T4 IP67 - When Combustible XCell Sensor is installed Ex ia IIC T4 IP67 - When Combustible XCell Sensor is not installed. SANS 1515-1	
Certification body :	TSA	FTZU
Type Certificate No :	**IECEx TSA 08.0013X**	**FTZU 07 ATEX 0169X**
Variations/Issue/Amendment :	7	11
Assessment Report No :	AU/TSA/ExTR07.0040/0, AU/TSA/ExTR10.0009/0, AU/TSA/ExTR12.0034/00, CZ/FTZU/ExTR09.0023/0	
Quality Assurance report (QAR) / Notification (QAN) :	FR/INE/QAR08.0011/06	

/. STANDARDS…

Standards:	- EN 60079-0	(2012)	"General requirements"
	- EN 60079-1	(2014)	"Equipment protection by flameproof enclosures 'd'"
	- EN 60079-11	(2012)	"Equipment protection by intrinsic safety "i""
	- EN 60079-18	(2009)	"Equipment protection by encapsulation "m""
	- EN 60079-29-1	(2007)	"Gas detectors – Performance requirements of detectors for flammable gasses"

COMPLIANCE:

The equipment as described below is hereby certified "Explosion Protected Ex ia I Ma IP67, Ex ia da IIC T4 IP67 and Ex ia IIC T4 IP67 (As applicable) and is suitable for use in hazardous locations as stated below and as tested, assessed and inspected in accordance with the relevant requirements of SANS / IEC Standards:

The evaluation was conducted according to the requirements of:

- SANS (IEC) 60079-0	**: 2012**	**"Explosive atmospheres – Part 0: Equipment — General requirements"**
- SANS (IEC) 60079-1	**: 2015**	**"Explosive atmospheres – Part 1: Equipment protection by flameproof enclosures 'd'"**
- SANS (IEC) 60079-11	**: 2012**	**"Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"**
- SANS (IEC) 60079-18	**: 2009**	**"Explosive atmospheres Part 18: Equipment protection by encapsulation "m""**
- SANS (IEC) 60079-29-1	**: 2012**	**"Gas detectors – Performance requirements of detectors for flammable gasses"**
- SANS 1515-1	**: 2014**	**Gas measuring equipment primarily for use in mines Part 1: Battery-operated portable, flammable gas measuring instruments and warning devices**
- SANS 1515-3-1	**: 2015**	**Gas measuring equipment primarily for use in mines Part 3-1: Battery-operated, portable, toxic gas measuring instruments and warning devices**
- SANS 1515-4-1	**: 2015**	**Gas measuring equipment primarily for use in mines Part 4-1: Battery-operated portable, oxygen-deficient/oxygen-enriched measuring instruments and warning devices**

Location	Zone 0,1, 2	Gas Surface/ Underground Mining
Hazard Frequency	---	Continuous as could occur under normal operating conditions in hazardous area
Environment	Group I	Methane / Coal dust
	Group IIC	Propane to Hydrogen/Acetylene
Surface Temperature	150°C	Coal Dust
	T4	135ºC

Service/Ambient Temperature -40°C up to +60°C

/. The use…

The use of apparatus in hazardous locations is subject to the following provisions as applicable, which shall be adhered to:

i. SANS 10086 requirements;
ii. Any conditions mentioned in the above document;
iii. Codes of Practice enforced in terms of Regulations 21.17.2 of Minerals Act, by Chief Inspector of Mines;
iv. Any restrictions and conditions enforced by Chief Inspectors of Mines, Principal Inspector (Group I equipment) of Chief Inspector of Factories (Group II equipment);
v. Any relevant requirements of the MHS Act or the OHS Act.

DESCRIPTION

The Altair 4X Multi-gas Detector is a 4 Gas instrument. It contains XCell series toxic electrochemical cell (one or two sensors), one XCell combustible cell, and one XCell oxygen electrochemical cell. It measures 75 mm by 120 mm by 35 mm. The body is made of RTP 2099 EX 118617 B material. The display is a mono-colour LCD (Philips PCF8533 series).

The rechargeable battery is Lithium polymer (Sony battery) – one cell. The battery is encapsulated in a plastic container with soft polyurethane based encapsulant.

MARKING:

The **TSA / FTZU** marking remains applicable. In addition, the following MASC Certificate number (IA number) and ambient temperature range must be applied to the equipment.

IA No:	MASC MS/18-0462X
	SANS 1515-1
	SANS 1515-3-1
	SANS 1515-4-1
Ta:	-40°C up to +60°C

CONDITIONS OF MANUFACTURE:

- None

SPECIAL CONDITIONS OF USE (X):

- The output parameters for the battery charger, which may be connected only in a safe area, are shown below:

Maximum Charger Voltage Um	6.7 V
Maximum Charger Current Im	1.7 A

/. CONDITIONS…

CONDITIONS OF CERTIFICATION:

1. This IA Certificate covers all units sold from the date of this document to 22 March 2021.
2. As per ARP 0108 a three yearly review is required on this IA Certificate.
3. The apparatus must be additionally marked with the MASC marking details above.
4. This approval only covers the equipment as certified above and does not include any scheduled additions or variations / amendments / new issues to the certificate(s), made after the above date.
5. The equipment does not need to be re-tested when used on the conditions and with such restrictions as prescribed by **TSA / FTZU** and in this approval.
6. The **TSA / FTZU** certification must remain valid.
7. The extent of the requirements in the ARP 0108 (or regulations) and SANS 10108 on the certification of the equipment must remain unchanged.
8. The Ex quality assurance notification/report for the equipment must remain valid.

CONCLUSION:

From the above and the selective examination of the documentation, nothing contrary to the requirements of the applicable standards was found, provided that the equipment / component is used as described in the above document / certificate and according to the MASC conditions below. A MASC IA certificate is issued based on the work done by **TSA / FTZU**.

The routine tests for production units according to the **TSA / FTZU** Certificate must be complied with (if applicable).

Additionally, and specifically pertaining to the SANS 1515 portions of the assessed and approved units:

According to the relevant requirements of the MHS Act and the OHS Act, production units of explosion protected equipment are required to comply with third party quality assurance (an approved mark scheme or batch testing by an accredited test laboratory.)

Yours faithfully

D.P Visser
TECHNICAL SPECIALIST

F du Toit
TECHNICAL SPECIALIST

Mining And Surface Certification