Airborne Molecular Contamination by MaSaTECH

AMC-AIMS

Airborne Molecular Contamination AIMS detector was developed by MaSaTECH in order to detect pollutants at concentration below 100 ppt. The instrument is excellent for 24/7 **Ammonia** monitoring, **Amines** monitoring, **Total Acids** monitoring as well like for **selective acids** (HCl, HF, Cl2…) monitoring.

The AMC-AIMS is **non radioactive** Ion Mobility spectrometer that cover all requirements for clean room monitoring. The **integrated PC** allow instrument to work as stand alone device or can be independently controlled by TCP/IP port. The multiport sampling is also possible by this device.

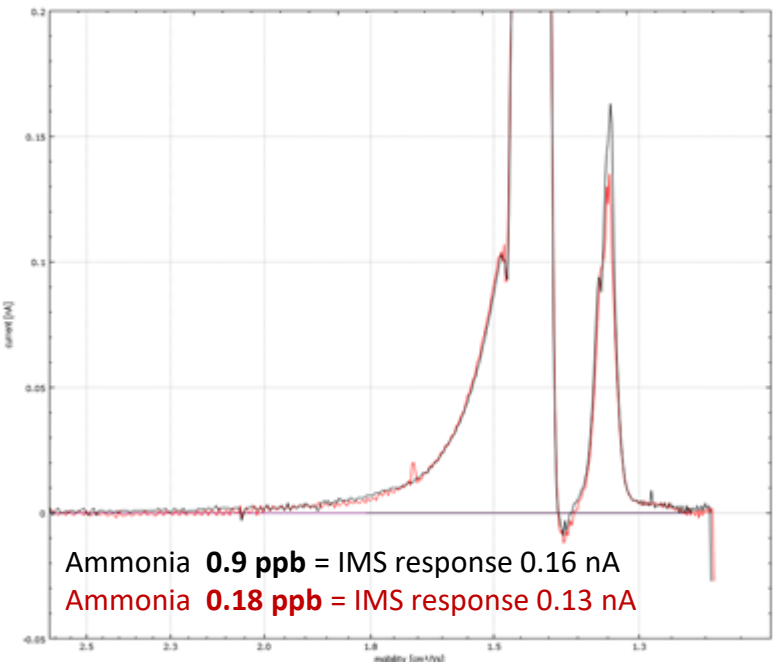
The **integrated sampling pump** making operation of the instrument more easy as it is enough just to plug-in a CDA and room monitoring can start.

Except other features have AMC-IMS integrated also **mass flow controller** and **pressure sensor for IMS drift tube**. This allows absolute control of target peak position and zero peak position shift.

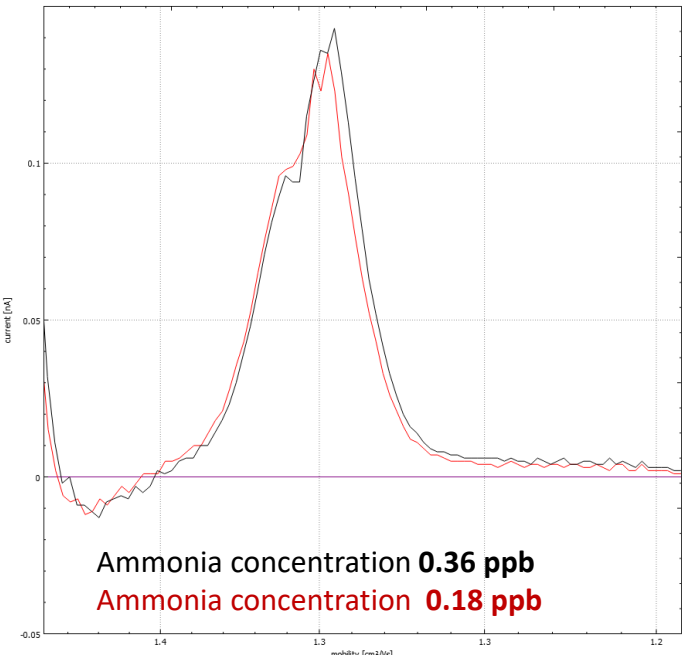
AIMS Working temperature	50 °C
Resolving power xCDA	90/100 FWHM
NH3 Sensitivity	<100 ppt
Total Acid Sensitivity	<200ppt
Room (sample) gas flow	600 ml/min
CDA gas flow	800 mL/min
Ionization Source	Corona Discharge
Integrated PC	YES
Integrated software	YES
Power supply	110/250V / 24V
Connectivity	TCP/IP, TCP server
Dimensions (mm)	177 x 448.7 x 375.5

Airborne Molecular Contamination by MaSaTECH

Ammonia detection by AMC-AIMS

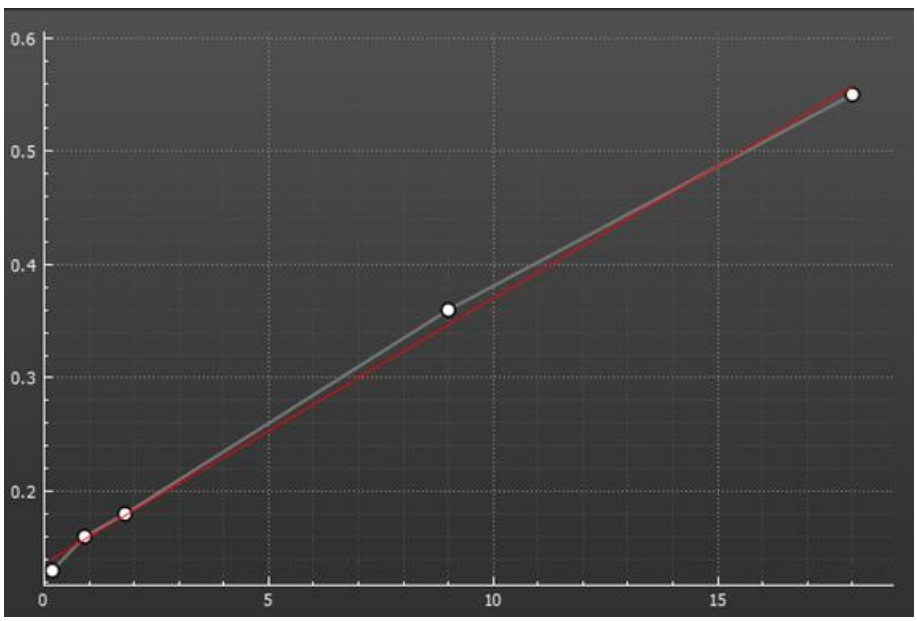


Ammonia **0.9 ppb** = IMS response 0.16 nA
Ammonia **0.18 ppb** = IMS response 0.13 nA



Ammonia concentration **0.36 ppb**
Ammonia concentration **0.18 ppb**

The AMC-AIMS can distinguish even small deference in Ammonia concentration .
T10<120s T90<120s



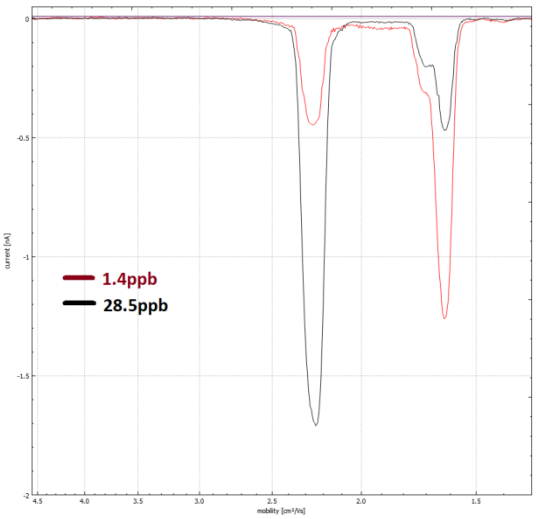
Linearity 99.7%

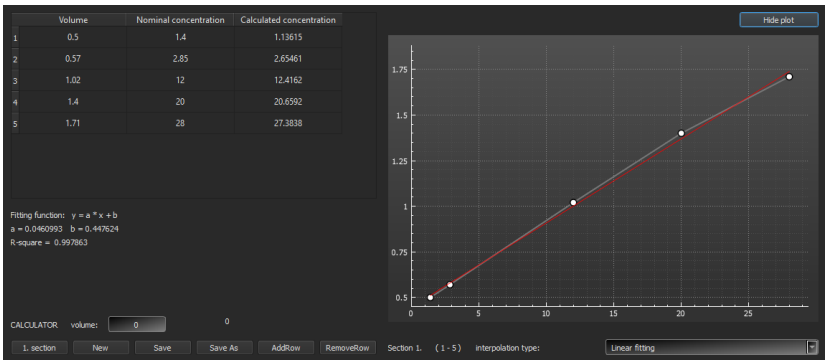
LOD < 100ppt

Linear fitting for measured data 0.18-30 ppb

Airborne Molecular Contamination by MaSaTECH

Acids detection by AMC-AIMS
SO_2 Detection





LOD < 200ppt

T10 < 60s, T90<60s

The SO2 is frequently used as a reference for **Total Acids** monitoring. Due to various ionization efficiency of each acid are other acids detected by IMS referred to term **Total Acid**. The AMC-AIMS can be used for Total Acids monitoring or for selective acids monitoring.

Table of acids detected by AMC-AIMS

Chemical Name	peak position (reduced mobility)	Range	LOD
SO2	2.20	0.01	<0.15ppb
Acetic Acid	2.09	0.01	1ppb
Formic Acid	2.28	0.01	0.8ppb
HCl	2.42	0.01	1ppb
HNO3	2.21	0.01	0.5ppb
HF	2.44	0.01	1.1ppb
HBr	2.31	0.01	1.1ppb
H3PO4	2.43	0.01	1.6ppb
Br2	2.19	0.01	0.5ppb
Cl2	2.35	0.01	1.2ppb
TAC	**2.20**	**0.6**	**<0.15ppb**