

## **MARKETS PRESENTATION**

**Ambient Air Monitoring (outdoor)**

**Industrial Air Monitoring (indoor)**

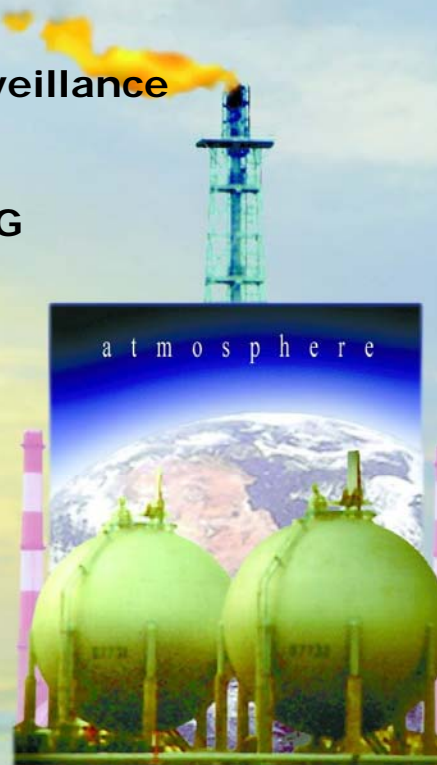
**Pure gas / Gas manufacturers**

**Water surveillance**

**Natural gas / LPG**

**Emission and CEM**

**PROCESS**



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# SEVEN MARKETS & APPLICATIONS

## I. Ambient Air Monitoring (outdoor)

This market is **driven by legislation** in Europe and in the USA (US EPA).

The decision makers are usually the people in charge of the environment department of a city, in the local authorities or in the central government for legislation.

People who are already working (or representing) ambient air analysers such as O<sub>3</sub>, CO<sub>2</sub>, dust...are good contacts for the Chromatotec instruments such as the BTX, Sulfur and the VOC analysers can be a good complement of their range.

The airmoBTX 1000 has the TÜV approval on all BTEX compounds (1996). The airToxic and airmoBTX both have the Italian CNR approval (2006 for airToxic and 2007 for airmoBTX).



### 1.1. BTEX, VOC and Organics

**Air monitoring in town, suburban areas or mountain.**  
Island / Boat: PPT



Our airmoZONE cabinet

- 1) BTEX = airmoBTX FID or airToxic PID  
Options: 1.3 Butadiene or Styrene  
CNR and TÜV certification
- 2) Ozone precursors = airmOzone PAMS (30 or 58 compounds)  
airmoVOC C<sub>2</sub>- C<sub>6</sub> + airmoVOC C<sub>6</sub>-C<sub>12</sub>  
for non volatile organics airmoVOC C<sub>10</sub>-C<sub>18</sub>  
VOC analyser – mCERTS EN-14662-3  
**mCERTS test (5 months) will be completed in 2010.**
- 3) CH<sub>4</sub>/NMTHC /CO /CO<sub>2</sub> = chroma THC or CO or HCHO  
Also Acetone and Formaldehyde
- 4) TERPENES  
Alpha and beta pinene plus LIMONENE

### 1.2. Sulfur or odor.



Our airMEDOR system

Sulfur compounds = airMEDOR H<sub>2</sub>S/Mercaptans/ Sulfides  
/TOS /TRS  
Odor from sulphur or NH<sub>3</sub>

### 1.3. Air Toxics and odorants

- 1) 1,3 butadiene airTOXIC and airmOzone for TO-14 compounds
  - 2) TRSMEDOR for sulphur compounds (Mercaptans, H<sub>2</sub>S, sulfides) measurement in industrial outdoors environment
  - 3) Dioxine precursors
- Chromatotec has developed a new analyzer to measure Chlorobenzene compounds which are considered as dioxine precursors: airTOXIC VOC



Our airtoxic system

## II. Industrial Air Monitoring

### 2.1 Clean air room.



There is a need to monitor the **ambient air in clean rooms** (chip production room). The air coming in to the room is filtered and checked continuously for **VOCs at trace level content (LOW PPB and PPT required)**. **airmoVOC** and **airmoC10/C18**  
**Solvents+BTEX+styrene+PGMEA+acetone+IPA+organocompounds+ ...**

Usually, samples are sent to the laboratory for analysis; this costs a lot of money and is a delayed measurement: if there is a problem, all the production is lost and the cost is high ...!!!

The people to visit are the facilities engineer, production manager, the environmental manager, or **contamination specialist**. Also, the purity of the gases delivered has to be checked.

### 2.2 Industrial hygiene: People protection ( TOXICITY ) :

Some industries use or produce toxic compounds such as **Benzene or H<sub>2</sub>S**. Chromatotec can monitor these chemicals. Usually the range is: **0.1 to 1 PPM**. **chromaFID** or **chromaPID**; **AirmoTWA** We can also offer a complete cabinet with **5, 10 or more sampling points** to analyse the Time Weighted Average (TWA) and Permissible Emission Limit (PEL) in specific areas of a refinery. **Cycle time 1 to 3 minutes per stream**

#### TO14 application

These plants use various chemical compounds in low amounts compared to basic chemical companies. The advantage for us is that they use basic chemical compounds to manufacture products like all the solvents usually encountered: **benzene, all the family of the chlorinated compounds (methylene chloride, dichloroethane, dichloromethane and others like acrylonitrile, Vinyl chloride Monomer (VCM) : chromaBCME / chromaHx / airmoHx Ethylene Oxide (EtO)** is used in sterilisation process and is very toxic.

These companies usually have large budgets for **industrial hygiene** and we can offer them high quality instruments like the **AirmoVOC C<sub>6</sub>-C<sub>12</sub>** or **AirmoVOC C<sub>3</sub>-C<sub>6</sub>** or **chromaFID**, the complete cabinet (**AirmoTWA**) to do a few **toxic compounds** at high ppb level on 5, 10 or more sampling points. People in charge are usually production, industrial hygiene and safety managers.

**At fenceline** (just out of the refinery for the ambient air monitoring) 10 to 500 PPB is requested.

Chemical and petrochemical plants also need to monitor sulfur compounds used in catalytic processes.



Our TRS Medor system

Natural gas production plants also need to monitor sulfur species that are either used for odorization or are sometimes also present in source natural gas. This sulfur species when leaking causes pollution of the ambient air creating an issue for the population in or around the plant. The **TRSMEDOR** is the perfect solution to monitor this.



Our airmoTWA cabinet

## 2.3 Refinery / Petrochemicals and Hazardous area

### ASTM D7493 - 08 Standard Test Method for Online Measurement of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatograph and Electrochemical Detection

Application Chromatotec with purged box Exp: category 1 Ilc T4 for example

**Ethylene** is a major basic product in petrochemical plants. It enters in the manufacturing of polyethylene with some **other pure gases like N<sub>2</sub>, or H<sub>2</sub>.**

The reaction involves **catalytic beds** that are very expensive. These incoming gases should be as pure as possible and the petrochemical companies have to check the lowest quantity as possible (ppb level of organic and inorganic **pollution like O<sub>2</sub> or COS and alcohols, CO, CO<sub>2</sub>...**).

The **energyMEDOR**, the **ChromaFID** or the **airmoVOC C<sub>6</sub>-C<sub>12</sub>** are perfect for this type of application

CO<sub>2</sub> production from combustion (refinery) for food industry (CO<sub>2 gas</sub>) read 3.5

**Benzene 5 PPB** and **Acetaldehyde at 200 ppb.** or **METHANOL**



## 2.4 Waste water treatment plants and land field

This application is very interesting and Chromatotec is well ahead.

The goal is to analyze **PPB or PPM** of **H<sub>2</sub>S** and **mercaptans** with the **trsMEDOR** because of **bad smell of emissions from waste water treatment plants and also the toxicity of H<sub>2</sub>S and Me-SH.**

Usually the five sulfur compounds involved in the waste water treatment plants are: (fermentation + odor)

- **Methylmercaptan(Me-SH), odor+toxic**
- **Dimethylsulfide(DMS) odor**
- **DimethylDisulfide (DMDS). odor**
- **H<sub>2</sub>S odor+toxic**
- **NH<sub>3</sub> and Amines odor**



The instruments provided today are total Sulphur analysers that have two major differences with Chromatotec's solutions. Competitors' equipment analyser total sulphur (equivalent in SO<sub>2</sub>) **whereas we do speciation of all mercaptans compounds at very low levels (down to 1 ppb detection limit). PPT as an option.**

The instrument for such applications is mainly the **trsMEDOR** as it does not require any cylinder gas to work (just carrier gas: AIR or nitrogen by zero air generator) and it is very sensitive. It is delivered with permeation tubes for **calibration and validation of results.**

### III. PURE GAS: CYLINDERS/PIPELINE

Air Liquide, Praxair, Air Products, BOC, Messer, Linde, Takachiho , Aga ,...:

They **need to control the amount of impurities**: Quality control before delivery to customer like **petrochemistry ,chemistry...**

Chromatotec also supplies for pure gas manufacturers the **airmoQuality** that is a **complete 19" rack cabinet** including one, two or three analysers, one industrial computer, one calibration unit...

The instrument may be VOC analyser...

- Pure gas at **PPM or %**.(chromaTCD)
- **Sulphurs because of bad odor**. (energyMEDOR, ChromaS)
- **CO and CO<sub>2</sub>** at ppb level in pure gas (chromaCO)
- **VOC.PAMS** with **acetone and formaldehyde**(airmoVOC)
- **CH<sub>4</sub>/NMTHC** at ppb level (chromaTHC)
- **NH<sub>3</sub> and Amines**
- **Permanent gases (He, Ar, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>...)** at ppb level in different matrixes.

#### 3.1 The bulk gas industry

Quality control: 4.0 (99.99%): chromaTCD



#### 3.2 The U.H.P. industry

Some companies sell at high prices very pure gases:

**Quality control:** 6.0 (99.9999 %) or 7.0

**Permanent gases (He, Ar, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>...)** at ppb level in different matrixes

**Rare gases like Xenon or Krypton in lamp**

Gas for process or university



#### 3.3 The specialty gas industry

Quality control of VOC in nitrogen or helium. Cylinders are used for calibration.

**airmOzone PAMS** (30 or 58 compounds)

**All Mercaptans** compounds at very sensitive levels (down to 1 ppb detection limit).

**PPT** (30 to 3 000 PPT) in option

#### 3.4 The Medical industry



*Our chromachrom system*

Impurities in air (chromaCO) or O<sub>2</sub> or N<sub>2</sub>O.  
**Formaldehyde or ETO or CO**

*Our airmOzone cabinet*

### 3.5 The food industry (CO<sub>2</sub> gas) :



This application is very interesting and we have a complete package. Of course, depending on where the CO<sub>2</sub> comes from (petrochemical, fermentation...), it contains different proportion of Sulphur compounds and VOCs.

Usually, they want to analyse sulphur compounds as they may strongly interfere with the taste of the product (beer or Coke) and they also want to analyse **Benzene** 5 PPB and **Acetaldehyde** at 200 ppb.

**airmoBTX** plus special application: Formaldehyde as an option.

The concerned companies are breweries or those that produce CO<sub>2</sub> from combustion (refineries).

For sulphur analysers, Chromatotec can be in competition with Total Sulphur analysers that use a catalytic bed to burn all the Sulfur compounds and give an answer in equivalent SO<sub>2</sub>.

Our big advantage is that we do a **speciation** of the compounds and that we are **much more sensitive** (down to 2 ppb in CO<sub>2</sub>). CO<sub>2</sub> is not diluted in air at 50% like for SO<sub>2</sub> analyser.

**ChromaS (COS SO<sub>2</sub> CS<sub>2</sub> H<sub>2</sub>S TOS)**

In summary, Chromatotec has developed a complete CO<sub>2</sub> monitoring cabinet including:

- **airmoBTX 1000** (ppb **acetaldehyde, BTEX**)
- **ChromaS** (**SO<sub>2</sub>, COS and H<sub>2</sub>S**)
- **ChromaTHC** (ppm **CH<sub>4</sub>/NMTHC**)
- **ChromaDID** (ppm **CO, O<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub> and CH<sub>4</sub>**)
- NH<sub>3</sub>/NO<sub>x</sub> analyzer
- Moisture analyzer



## IV. Natural gas and LPG

The natural gas market concerns mainly the **energyMEDOR PPM** or **PPB**: Sample is pressurised.

The **chromaS** if **COS** is required and the **chromaTCD (C<sub>1</sub>-C<sub>6</sub><sup>+</sup>)**.

Chromatotec has developed the **MEDOR Ex** for **Class I div 2 group C&D hazardous area**.

Also, the new **ASTM method D7493-08 Standard Test Method for Online Measurement of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatograph and Electrochemical Detection** criteria are fulfilled by the **Energymedor**.



### 4.1 Odorization : low PPM



The goal is to analyze **H<sub>2</sub>S** and **mercaptans** concentration in natural gas (**PPM**). These mercaptans are added to natural gas to make it smell so that it can be detected by the human nose (odorization process and odorization control in pipes). **energyMEDOR PPM. 30 years experience**

The compounds usually used to odorize natural gas vary from one country to another but are usually:

**Ter Buthyl Mercaptan (TBM)**      **TetraHydroTiophene (THT)**  
**MethylEthylSulfide (MES)**

The **MEDOR** is well known, more than 1000 instruments sold all over the world to gas companies: KGC (Korea), PGE and PSEG (USA), ENAgas Spain, UK, Germany, France (GDF or TOTAL), Austria, the Middle East, Japan ...

### 4.2 Desodorization: PPB

The **energyMEDOR PPB** allows the end user to observe the speciation of each component of Sulphur present in natural gas, or for quality control of **disulphuric gas (PPB) after desodorization**

In these **two sub markets**, the different end users are:

- general natural gas companies.
- natural gas transport companies **.ChromaS because of COS**
- natural gas storage companies.
- LPG companies (looking as well for sulphur in LPG) aerosol
- blend manufacturers (Philips Petroleum, Elf...)

### 4.3 MEDOR EXp

The **MEDOR EXp** is installed in **class I div 2, group C & D** environment.

Features include an automatic purging system (Purge Y & Z), calibration via permeation tubes or external gases, automatic validation of analysis by internal standard for safety reasons.



MEDOR EXp

### 4.4 Calorific value: Wobe index

**chromEnergy** for **CH<sub>4</sub>/N<sub>2</sub>/CO<sub>2</sub> to C<sub>6</sub><sup>+</sup>** / PCI calculation / EXp  
**Chroma180** for **C<sub>1</sub> to C<sub>6</sub><sup>+</sup>** / PCI calculation / EXp

## V. Emission and CEM

Complete range of **VOC / H<sub>2</sub>S / CS<sub>2</sub> / CH<sub>4</sub>-NMTHC / NH<sub>3</sub> / NOX / SO<sub>2</sub> / TRS / CL<sub>2</sub>** in wall or rack version.  
For **ISO 11042-1 UHC/CH<sub>4</sub>/C<sub>2</sub>H<sub>6</sub>** analysis

- Available in a chassis, in a cabinet or in a shelter (including **heated probe and heated sample lines or dilution system**, calibration system, Heated multiplexer, gas generator, mud waste...),
- Operating automate,
- Supervision system,
- Equipment allowing to meet the engineering bids.



### 5.1 From Automotive

airmOzone PAMS (30 or 58 compounds)  
**CH<sub>4</sub>-NMTHC or UHC-CH<sub>4</sub>-C<sub>2</sub>H<sub>6</sub>**

### 5.2 From combustion: CEM

Control Emission Monitoring: CEM

Today different ministerial directives lead the market to follow the industries.

They are **power stations**, incinerators (domestic **wastes**, mud, hospitals...) **cement industry, glass**.

Typically, there is a requirement to measure Total Hydrocarbons sometimes called THC or Total FID.

If a measurement of methane content is required, the **ChromaTHC (Methane/NMTHC (Non Methane Total Hydrocarbons))** is the best solution. If only a total hydrocarbons is requested, then the **EpsiVOC** (FID detection) with detection limit of 0.1 ppm is the adequate solution.

### 5.3 From Paper plant

**H<sub>2</sub>S** and **CS<sub>2</sub>** in stack: gas with high humidity at 60°C or more:  
**chromaS** with probe and heated sample line (or dilution system)  
Results transfer to a display monitor and also to the control room for process



ChromaS analyser

### 5.4 Odor :Bad smell

The objective is to analyse **H<sub>2</sub>S PPB** and **mercaptans** after found in odorous emissions with the **TRSMEDOR**. Usually the four Sulfurs involved in the waste water treatment plants are ( fermentation/odor ):

MethylMercaptan ( MM )	odor + toxic
EthylMercaptan ( EM )	odor
DiMethylSulfide ( DMS )	odor
DiMethylDiSulfide ( DMDS ).	odor
H <sub>2</sub> S	odor + toxic
NH <sub>3</sub> and Amines	odor
Cl <sub>2</sub>	Emission control ( Kyoto protocole)

The instruments provided today are total Sulphur analysers that have two major differences with Chromatotec's solutions. Competitors' equipments make total sulphur analysis (equivalent in SO<sub>2</sub>) **whereas we do speciation of all mercaptans compounds at very sensitive levels (down to 1 ppb detection limit). PPT as an option**

The instrument for such applications is mainly the **TRSMEDOR** as it does not require any cylinder gas to work (just carrier gas: AIR or nitrogen by zero air generator) and it is very sensitive intrinsically. Delivered with permeation tube for **calibration and validation of results**



## VI. PROCESS

Secure a plant or optimise a process.

### 6.1 Plant Protection and process optimisation

**Problem:** Analyse **total chlorines** as well as **organic compounds** with a quick response time.

**Purpose:**

Protect and authorize the operation of the incinerator:

-VOC limits the ability to incinerate

-Chlorine and fluorides limits the ability to incinerate to protect the incinerator

**Analytical Solution**

-VOC analysed from the FID GC

-The total Halogenated compounds

1. -Installation of a reactor to convert the chlorines and the fluorides into HCl and HF
2. - Halogenated compounds analysis with our instrument **Hx analyser**

**Technical:**

**Automate** start up in order to run the **GC redundancy** but as well to assure the phase difference with the customer supervision (including alarm management).



### 6.2 Odorization injection and control

Mercaptans or THT are added to natural gas to make it smell so that it can be detected by the human nose (odorization process and odorization control in pipes).

**energyMEDOR PPM. 30 years experience**

The compounds usually used to odorize natural gas vary from one country to another but are usually:

**Ter Buthyl Mercaptan (TBM) TetraHydroTiophene (THT) MethylEthylSulfide (MES)**  
analyze **H<sub>2</sub>S and mercaptans** concentration in natural gas (PPM).



EnergyMEDOR system

### 6.3 Combustion

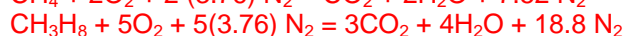
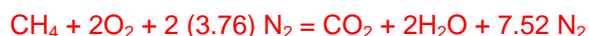
**Process optimisation of the combustion and the plant security:**

- O<sub>2</sub> analysis : in situ probes in Zro2
- Opacity measure/dust weight

Each industry has a fluid power station for steam production, heated water, electricity (via cogeneration or turbine...). The **key argument is economical with the potential savings due to the optimization of the process** (air/combustible ratio).

**Explanation:**

Combustion efficiency values are calculated based on the theoretical peak CO<sub>2</sub> values at stoichiometric conditions (excess oxygen levels are zero). It is important for the user to remember that realistically, not many burners are capable to ignite at low O<sub>2</sub> levels required to burn all the carbon in the fuel to Carbon Dioxide and convert all the Hydrogen into the water. The chemical reaction given below expresses Stoichiometric combustion for two examples, Natural Gas and Propane:



In each case, no Oxygen remains after combustion takes place.

### 6.4 SULFUR LESS

**Problem:** cleaning of natural gas to have zero sulphur (0.1 ppb).

## VII. Water surveillance

Sparger for finished drinking water, raw source water or drinking water in any treatment stage.

### **7.1 Standard sampling:**

AirmOzone Purge & Trap ref. A52022-502.

The complete unit with analysers for continuous monitoring of 60 VOC including BTEX with US EPA 502-2 method.

### **7.2 Specific sampling:**

In option, for:

- Water surveillance, with sulphur in air in option
- Waste water plant
- River water
- Rain water
- Sea water



**Purge & Trap cabinet  
for water analysis**

## VIII. CONCLUSION

**20 years of experience started by airmotec and Chromato-Sud.**

The main advantages of the Chromatotec instruments are:

- 1) They are **19" rack and 4U** high with everything (except the pump) included in the instrument (sampling system, trapping system and the analytical system).
- 2) They are automatic systems with gas generator and **automatic validation** of results in (concentration) with auto-calibration and permeation tubes.

### **Industrial online chromatograph with auto-calibration by permeation tube**

- 3) They can be **remotely controlled** and accessed via a software called **VPN** or via an Ethernet board installed on the computer and linked to the customer's network. This remote access is a very important tool to enable Chromatotec (from Bordeaux, or Houston) or the local distributor to **access** the instruments in case of break down or for trouble shooting.
- 4) They are **very sensitive**, and we analyse background levels, when competition sees zero.
- 5) **Automatic Trend to identify BTEX between 0.1 and 100 PPB**
- 6) One computer with Vistachrom and window XP embedded can control one, two or three instruments at the same time. **Modbus Protocol is used for bidirectional communication with central supervisor.**
- 7) User friendly software with peak viewer program including trends and 3D display.
- 8) We have a definite advantage over our competitors in the world of BTX analyzers as none of the latter have reached Chromatotec's expertise in the measurement of VOC (ozone precursors) at low and very low levels.
- 9) Compliance/certifications:
  - The study by French laboratory LCSQA (Report Mines de Douai, Nov 2007) shows that the airmoBTX analyzer is the only analyzer compliant with European norm 14662-3.
  - The airmoBTX 1000 analyzer has the DIN standard 33963 part I and II approved by TÜV for each compound BTEX (1996).
  - Italian CNR approval on airToxic in 2006 and CNR approval on airmoBTX in 2007.
  - Medor has the ISO certification 6326/2 and meets the DIN 51855/7 standard in natural gas and air.
  - ASTM D7493-08 (April 2009) is an approved method to measure on-line sulphur compounds in natural gas and the Energymedor EXP is the appropriate tool to accomplish this.
  - European norm NF EN 14662-2: ambient air quality – Standard method for the measurement of Benzene concentrations – part 3: automated pump sampling with in-situ gas chromatography (in process).

Chromatotec analyzers are built by experts in gas analysis

## List of products - Analysers and Accessories

P/N	U	Description
<b>GC 866 - Airmo range (TRAP) with pump - Including packaging</b>		
<b>FID detector</b>		
A10000	4U	* airmo C10-C20
A11000	4U	* airmo VOC C2-C6 (with internal cooling) XXX015 is needed
A13000	4U	* airmoHCHO (Formaldehyde and Acetaldehyde) - XXX015 is needed
A21022	5U	* airmo VOC C6-C12 - inbuilt computer
A22000	4U	* airmoVOC C3-C8
A24000	4U	* airmoTHC - ppb (CH4/NMTHC)
A31022	5U	* airmo BTX 1000 - inbuilt computer / pump & airmoCOM XXX001 included
A34022	5U	* airmo BTX 1000 with CALIB and pump included - inbuilt computer - airmoCOM XXX001 included
A51022-56		* System C2-C12 PAMS 56 with tubings = A11000 + A21022 + XXX004 + XXX001 airmoCOM (MODBUS)
A52022-56	33U	* airmOzone C2-C12 Complete Unit PAMS 56 = A51022 + XXX916 + XXX922 + XXX041 + XXX031
A52022-88		* airmOzone C2-C12 PAMS/TO14 , Complete Unit to analyse 88 compounds = A51022 + XXX916 + XXX922D + XXX041 + XXX031
A52022-502		* airmOzone Purge & Trap , Complete Unit to analyse 60 compounds = A51022 + XXX916 + XXX922D + XXX041 + XXX031 + X Purge FID
A53022-S		* airmOzone C2-C12 PAMS , Complete Unit to analyse 56 VOC compounds and 8 sulfurs = A51022 + XXX916 + XXX922 + XXX041 + XXX031 + chromaS
XXX041		* Installation in a 19" cabinet
<b>PID detector</b>		
A73022	5U	* airTOXIC BTX (Calib included) - inbuilt computer / airmoCOM XXX001 included
A74022	5U	* airTOXIC BTX - 5 U - inbuilt computer / airmoCOM XXX001 included
A76022	5U	* airTOXIC BTX + 1,3 Butadiene (Calib included) - inbuilt computer / airmoCOM XXX001 included
A77022	5U	* airTOXIC VOC - 5U - inbuilt computer
<b>Other detector or specific detector</b>		
A61000	4U	* airmoHx (halogen detector)
M53000	4U	* airmoMEDOR PPT with CALIB included - (trap)
X00001		* Special application with "complete report" and dedicated sampling
<b>GC 866 - Chroma range (LOOP) without pump - Including packaging</b>		
C11000	4U	* chroma CO (CO/CO2/HCHO)
C21000	4U	* chromaTHC - ppm (CH4/NMTHC)
C31022	5U	* chroma FID (without application) - inbuilt computer
C41022	5U	* chroma TCD - inbuilt computer
C42022	5U	* chromENERGY - inbuilt computer
C51000	4U	* chroma S - XXX015 is needed
C61000	4U	* chroma BCME
C62000	4U	* chroma Hx
C81000	4U	* chroma DID
C91022	5U	* chromaPID - inbuilt computer
X00001		* Special application with "complete report" and dedicated sampling
<b>GC 866 - MEDOR range (LOOP) without pump - Including packaging</b>		
M10000	4U	* airMEDOR (ppb application CALIB included)
M11000	4U	* airMEDOR (ppm application CALIB included)
XM1200		* Cl2 option in airMEDOR
M12022	5U	* MEDOR Cl2 - inbuilt computer
M21022	5U	* COS MEDOR - inbuilt computer
M31022	5U	* THT MEDOR - inbuilt computer
M41000	4U	* energyMEDOR ppm
M42000	4U	* energyMEDOR ppb (CALIB included)
M51022	5U	* H2S MEDOR - inbuilt computer
M52022	5U	* TRS MEDOR PPB with CALIB included - inbuilt computer
M53000	4U	* airmoMEDOR PPT with CALIB included - (trap) See airmo range with trap
M54022	5U	* TRS MEDOR PPM with CALIB included - inbuilt computer
M55000		* Presentation of MEDOR in Wall-mounted rack (in addition to the price of the system) For other systems, please contact us
X00001		* Special application with "complete report" and dedicated sampling
<b>Specific analysers - Domestic pack</b>		
XXXHOR		* NH <sub>3</sub> / NOx analyzer
D11000		* N <sub>2</sub> Monitor
E11000		* Total hydrocarbon analyser epsiVOC model
E13000		* Total Halogens analyser
X00001		* Special application with "complete report" and dedicated sampling
<b>PC software Vistachrom range</b>		
XXX012		* Vistachrom Configuration in Supervisor (Benchtop Computer) with Windows™
XXX013		* Vistachrom Configuration in Supervisor (Laptop Computer) with Windows™
XXX015	5U	* Supervisor - Chromatotec computer 5U, LCD display, latest version of VISTACHROM, with 2 x RS232 - including packaging
XXX021		* Modem Support : REMOTE CONTROL installed and configured into the computer & support for 1 year
XXX022		* Electronic and LCD display built into the analyser with VISTACHROM - Available with some models
XXX023		* Wall mounted computer with VISTACHROM - screen, keyboard, mouse not supplied
XXX001		* airmoCOM : Modbus or Bayern Hessen (German protocol) or JBUS communication (with driver installed)
XXX003		* 4 x 4-20 mA outputs and specific driver installed into supervisor (not comp. with XXX013)
XXX004		* MODEM & REMOTE CONTROL installed and configured into the computer
XXX005		* Alarms and calculations driver installed into the computer
XXX006		* Unit power supply UPS with RS cable (the computer must have a free port) standard model for 1medor or airTOXIC +supervisor (domestic pack)
XXX007		* Unit power supply UPS with RS cable (the computer must have a free port) Configuration on request (domestic pack)
XXX008		* Board for 4 RS232 ports (for our supervisor ref. XXX015)

P/N	U	Description
<b>Gas generator - Domestic pack</b>		
AXX021		* AirmoDRY for air generation 15 psi (or 1 bar) only for FID (pump + dryer + COV filter)
XXX031		* airmoPURE, a High Quality Air Generator, 45 psi (3 Bars) compressor, catalyst system and filters
XXX033		* airpurifier VOC with dryer
XXX034		* airpurifier VOC without dryer
XXX916	3U	* Hydroxychrom (hydrogen generator)
XXX912		* Nitroxychrom (Nitrogen generator) 200 cc/min from Air without compressor
XXX913		* Nitroxychrom (Nitrogen generator) 200 cc/min from Air with compressor
<b>Sampling, calibration and cabinets</b>		
XXX050		* Multiplexer for 2 samples (inside the instrument for MEDOR & CHROMA range) or 2 additional streams on external Multiplexer Ref XXX051 (Maximum of 10 streams)
XXX051	4U	* Multiplexer for 6 streams in rack 19" (pump not included) - Including packaging
XXX901		* airmoPUMP - a sampling pump
XXX90X		* airmoPUMP - double head sampling pump
XXX915		* Sampling pump for 6 streams
XXX922	4U	* AirmoCAL - CALIB with 3 permeation tubes supplied (airmoPURE not included) zero/air/calib/cylinder
XXX922D	4U	* AirmoCAL D = AirmoCAL XXX922 with 4 points of cylinder dilutions (airmoPURE not included)
XXX924		* Portable gas generator (with integrated 50-hour cell)
XXX931		* Calib (calibration mounted inside the analyser) with 1 tube as standard
XXvalveCAL		* external calibration for reference cylinder
XXvalveLPG		* LPG sampling
XXPurgeFID		* Purge FID (included purge and N2 generator XXX912)
XXPurgePID		* Purge PID (included purge and N2 generator XXX913)
XXX041	33U	* Installation in a 19" cabinet
XXX043	33U	* Installation in an IP55 cabinet
XXX044		* Air conditioning installed in the cabinet
XXX060		* Explosion proof special cabinet for installation in EX hazardous areas (for MEDOR & CHROMA range) certifiable by the CSA for Class 1 Div 2 Group C & D
XXX061		* CSA Certification Class 1 Div 2 Group C & D
XXX934		* Wall mounted rack (instead of 19" rack)
XXX936		* Rail slides to be mounted on a rack (pack of 2)
XXXPTFE		* Tube 1/4" PTFE Price per meter (Complete ref CS/TU/03052-PTFE)
XXXPOT		* Separator for condensation 0.5l (Complete ref ME/PN/91300-XPOT)
<b>Options</b>		
XXX071		* 24 Volt Power supply for analyser (Ref. CS/EL/00024-0000)
XXX072		* 12 Volt Power supply for supervisor (Ref IT/MO/00001-0001)
XXX932		* Catalyst
XXX933		* Valve in a temperature regulated oven
XXX935		* Second TCD detector with electronic
XXXMAN		* Operating manual
XXXPLAN		* Studies and specific plans
XXXSAM		* Sampling kit
XXXMAI		* Preventive maintenance contract for 2 years
<b>Starting-up &amp; Training</b>		
XXXLAB		* Labour - Starting-up and training - daily price
XXXFEE		* Documentation charge for specific requirements for transportation, and exportation purposes
XXXL/C1		* Letter of Credit charges for less than 50 000 EUR total value
XXXL/C2		* Letter of Credit charges for more than 50 000 EUR total value
XXXL/C3		* Shipping and handling documents for Letter of Credit by DHL or FEDEX
XXXFLY		* Travel and accommodation - Package
XXXTRA		* Freight charges
XXXINS		* Insurance on request (0,5% of the value)
<b>Upgrades</b>		
<b>Upgrade - PC software Vistachrom range</b>		
XXX018		* Upgrade VISTACHROM
XXX020		* Upgrade airmoCOM (to add up to VISTACHROM upgrade)
AXX023		* Upgrade TRAP BTX 3 Bars
AXX024		* Additional configuration VOC 14 compounds
<b>Recommended spare parts for maintenance</b>		
<b>airTOXIC A74022</b>		
CS/CO/00074-0012		Spare parts kit to replace each year on PID A74022
CS/CO/00074-0024		Additional Spare parts to replace every 2 years on PID 74022
CS/CO/00074-0036		Additional Spare parts to replace every 3 years on PID 74022
CS/CO/00074-0060		Additional Spare parts to replace every 5 years on PID 74022
<b>airTOXIC A73023</b>		
CS/CO/00073-0012		Spare parts kit to replace each year on PID A73022
CS/CO/00073-0024		Additional Spare parts to replace every 2 years on PID 73022
CS/CO/00073-0036		Additional Spare parts to replace every 3 years on PID 73022
CS/CO/00073-0060		Additional Spare parts to replace every 5 years on PID 73022
<b>airmoBTX A31002</b>		
CS/CO/00031-0012		Spare parts kit to replace each year on BTX A31022
CS/CO/00031-0036		Additional Spare parts to replace every 3 years on BTX A31022
CS/CO/00031-0060		Additional Spare parts to replace every 5 years on BTX A31022
<b>airmoBTX A34022</b>		
CS/CO/00034-0012		Spare parts kit to replace each year on BTX A34022
CS/CO/00034-0024		Additional Spare parts to replace every 2 years on BTX A34022