

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 O₃, CO₂, 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).

The airmoVOC (FID) and airTOXIC(PID) have been certified EN14662-3 following MCERTS Scheme



1.1. BTEX, VOC and Organics

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



Our airmoOZONE cabinet

- 1) BTEX = airmoBTX FID or airToxic PID
Options: 1,3 Butadiene or Styrene
CNR and TÜV certification
- 2) Ozone precursors = airmoOzone PAMS (30 or 58 compounds)
airmoVOC C₂- C₆ + airmoVOC C₆-C₁₂
for non volatile organics airmoVOC C₁₀-C₁₈
VOC analyser – MCERTS EN-14662-3
- 3) CH₄/NMTHC /CO /CO₂ = 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 H₂S/Mercaptans/ Sulfides
/TOS /TRS
Odor from sulphur or NH₃

1.3. Air Toxics and odorants

- 1) 1,3 butadiene airTOXIC and airmoOzone for TO-14 compounds
- 2) TRSMEDOR for sulphur compounds (Mercaptans, H₂S, 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, airmoC10/C18 and TRAP GC MS**
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 H₂S**. 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 C₆-C₁₂** or **AirmoVOC C₃-C₆** 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 Air quality control with TRAP GC MS

TRAP GC MS is a high performance solution designed by Chromatotec® to control indoor and outdoor air quality. Due to GC and MS coupling, identification and measure of air composition is possible in ppt range. Thanks to this system, unidentified compounds with conventional systems (compounds which are not included inside calibration cylinder) are becoming obvious.

Moreover, this complete system is totally suitable for industrial application (e.g. leaks measurements). Measure can be done punctually or in continuous depending on customer needed. Remote control and threshold alarm can also be used.

2.4 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 N₂, or H₂.**

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 O₂ or COS and alcohols, CO, CO₂...**).

The **energyMEDOR**, the **ChromaFID** or the **airmoVOC C₆-C₁₂** are perfect for this type of application

CO₂ production from combustion (refinery) for food industry (CO_{2 gas}) read 3.5

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



2.5 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 **H₂S** and **mercaptans** with the **trsmEDOR** because of **bad smell of emissions from waste water treatment plants and also the toxicity of H₂S 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
- **H₂S** odor+toxic
- **NH₃ 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 SO₂) **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 %**. (chromArgon, chromaTCD-He)
- **Sulphurs** because of bad odor. (energyMEDOR, chromaS)
- **CO and CO₂** at ppb level in pure gas (chromaCO)
- **VOC.PAMS** with acetone and formaldehyde (airmoVOC)
- **CH₄/NMTHC** at ppb level (chromaTHC)
- **NH₃ and Amines**
- **Permanent gases (Ne, He, Ar, H₂, O₂, N₂, CH₄...)** at ppb level in different matrixes.

3.1 The bulk gas industry

Quality control: 4.0 (99.99%): chromaTCD-He and chromArgon



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, H₂, O₂, N₂, CH₄...) at ppb level in different matrices

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.

airmoOzone **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



Our airmoOzone cabinet

3.4 The Medical industry



Our chromachrom system

Impurities in air (chromaCO) or O₂ or N₂O.
Formaldehyde or ETO or CO

3.5 The food industry (CO₂ gas) :



This application is very interesting and we have a complete package. Of course, depending on where the CO₂ 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 CO₂ 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 SO₂.

Our big advantage is that we do a **speciation** of the compounds and that we are **much more sensitive** (down to 2 ppb in CO₂). CO₂ is not diluted in air at 50% like for SO₂ analyser.

ChromaS (COS SO₂ CS₂ H₂S TOS)

In summary, Chromatotec® has developed a complete CO₂ monitoring cabinet including:

- **airmoBTX 1000** (ppb **acetaldehyde**, **BTEX**)
- **ChromaS** (SO₂, COS and H₂S)
- **ChromaTHC** (ppm CH₄/NMTHC)
- **ChromaDID** (ppm **CO**, O₂, N₂, H₂ and CH₄)
- NH₃/NOx 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** ($C_1-C_6^+$).

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 **H₂S** 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

V. Emission and CEM

Complete range of **VOC / H₂S / CS₂ / CH₄-NMTHC / NH₃ / NOX / SO₂ / TRS / CL₂** in wall or rack version.
For **ISO 11042-1 UHC/CH₄/C₂H₆** 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)
CH₄-NMTHC or UHC-CH₄-C₂H₆

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

H₂S and **CS₂** 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 **H₂S 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
H₂S	odor + toxic
NH₃ and Amines	odor
Cl₂	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 SO₂) **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 **H₂S and mercaptans** concentration in natural gas (**PPM**).



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 EN 14662-2: ambient air quality – Standard method for the measurement of Benzene concentrations – part 3: automated pump sampling with in-situ gas chromatography.

Chromatotec® analyzers are built by experts in gas analysis

List of products - Analysers and Accessories

P/N	rack	Description
GC 866 - Airmo range (TRAP) with airmoPUMP (XXX901) - Including packaging		
FID detector with trap		
A10000	4U	* airmo C10-C20 temperature gradient up to 350°C
A11000	4U	* airmo VOC C2-C6 (with internal cooling)
A21022 Mcerts	5U	* airmo VOC C6-C12 - inbuilt computer Mcert for benzene
A22000	4U	* airmoVOC C3-C8
A23022	5U	* airmo VOC expert - inbuilt computer
A31022	5U	* airmo BTX - inbuilt computer / Pump & airmoCOM XXX001 included
A34022	5U	* airmo BTX - inbuilt computer / Pump, CALIBRATION & airmoCOM XXX001 included
A51022-56		* System C2-C12 PAMS 56 with tubings = A11000 + A21022 + XXX004 + XXX001 airmoCOM (MODBUS)
A52022-56	33U	* Cabinet airmOzone C2-C12 for PAMS 56 = A51022 + XXX916 + XXX922 + XXX041 + XXX031
A52022-88		* Cabinet airmOzone C2-C12 PAMS / TO14 to analyse 88 compounds = A51022 + XXX916 + XXX922D+XXX041 + XXX031
A52022-502		* Cabinet airmOzone Purge & Trap ,502-2 Method = A51022 + XXX916 + XXX922 + XXX041+XXX031+X Purge FID
A53022-S		* Cabinet 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
PID detector with trap		
A73022 Mcerts	5U	* airTOXIC BTX - inbuilt computer /AUTO CALIBRATION & airmoCOM XXX001 included Mcert for benzene
	5U	* airTOXIC BTX - inbuilt computer / airmoCOM XXX001 included
A76022	5U	* airTOXIC 1,3 butadiene BTX - inbuilt computer /AUTO CALIBRATION/ airmoCOM XXX001 included
A77022	5U	* airTOXIC VOC - inbuilt computer
Other detector with trap		
M53000	4U	* airmoMEDOR ppt - CALIBRATION included - (trap) DMS / DMDS only
C51	U	* airmo S - CALIBRATION included - (trap) DMS / DMDS only
X00001		* Special application or modification (report, schematics, execution, ...)
GC 866 - Chroma range (LOOP) without pump - Including packaging		
C11000	4U	* chroma CO (CO CO2 HCHO) no sampling pump included
C24000	4U	* chromaTHC - (CH4/ NMTHC) (possibility to add inbuilt computer ref. XXX022) no sampling pump included
C31022	5U	* chroma FID - inbuilt computer (option : sampling pump and gaz purifier)
C41022	5U	* chroma TCD - inbuilt computer (option : sampling pump and gaz purifier)
C41022-Ar	5U	* chromArgon - inbuilt computer (option : sampling pump and gaz purifier)
C81022	5U	* chroma DID - inbuilt computer (option : sampling pump and gaz purifier)
C51000	4U	* chroma S - dual FPD (option : sampling pump and gaz purifier)
C51000-COS	4U	* chroma S - COS with CALIB (option : sampling pump and gaz purifier)
C51022-COS	5U	* chroma S - COS with CALIB (option : sampling pump and gaz purifier)
C91022	5U	* chromaPID - inbuilt computer no sampling pump included
X00001		* Special application or modification (report, schematics, execution, ...)
GC 866 - MEDOR range (LOOP) without pump - Including packaging		
M31022	5U	* THT MEDOR - inbuilt computer no sampling pump included
M41022	5U	* energyMEDOR ppm - inbuilt computer no sampling pump included
M42022	5U	* energyMEDOR ppb - inbuilt computer CALIBRATION included no sampling pump included
M43022	x	* energyMEDOR Exp certified (complete system)
M44022	x	* THT MEDOR Exp certified (complete system)
M51022	5U	* H2S MEDOR - inbuilt computer no sampling pump included
M51022-TS	5U	* H2S TS MEDOR : H2S +TOS = TS by calculation

M52022	5U	* TRS MEDOR ppb- inbuilt computer CALIBRATION included no sampling pump included
M53000	4U	* airmoMEDOR ppt - CALIBRATION included - (trap) See airmo range with trap ,for DMS / DMDS only
M54022	5U	* TRS MEDOR ppm - inbuilt computer CALIBRATION included no sampling pump included
X00001		* Special application or modification (report, schematics, execution, ...)
		Continuous Detectors without VISTADETECTOR - no pump
D30000	10U	* DET QMS : Quadrupole Mass Spectrometer with : application, 4way valve and GC interface
D24000-1	4U	* DET HCT : analyzer with 1 FID - vistaDETECTOR needed
D24000-2	4U	* DET 2 FID : CH4 and NMTHC analyzer with 2 FID - vistaDETECTOR needed
D25000	x	* DET CL2 : Chlorine detector (Cl2 gas) : need installation in a box
D26000	4U	* DET TS : Sulphur continuous analyzer for sub ppb or ppb range - vistaDETECTOR needed
D27000		* DET NH3 : NH3 analyzer wall mounted - ppm
D28000	5U	* NH3 analyzer in rack - ppb
		PC software Vistachrom range
XXX015	5U	* Supervisor -Chromatotec computer , LCD display , VISTACHROM or VISTADETECTOR with 2 x RS232
XXX021		* Modem Support : REMOTE CONTROL installed and configured into the computer & support for 1 year
XXX022	5U	* Electronic and LCD display built into the analyser with VISTACHROM -
XXX023	x	* Wall mounted computer with VISTACHROM - screen, keyboard, mouse not supplied
XXairmoREL		* airmorel : Card installed in the analyser, piloted by Vistachrom with 6 outlets and 2 inlets
XXX001		* airmoCOM : Modbus or Bayern Hessen (German protocol) or JBUS communication (with driver installed)
XXX003		* Active module, 4 outputs 4-20 mA or 0-10 V, powered analogic output :not compatible with Windows 7
XXX004		* MODEM & REMOTE CONTROL installed and configured into the computer
XXX005		* One Module : Alarms and calculations driver installed into the computer :not compatible with Windows 7
P/N	rack	Description
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)
		Gas generator - with packaging
XXX031-D		* airmoPURE, ppt VOC air Generator, 3-4 Bars compressor, catalyst system and filters, max. 1 liter/min
XXX912		* Nitroxychrom (Nitrogen generator) 200 cc/min from Air without compressor
XXX913		* Nitroxychrom (Nitrogen generator) 200 cc/min from Air with compressor
CS/PN/07539-ASSY		* Catalyser to burn VOC in ZERO air
		* Carier gas purifier with cylinder pressure regulator and fittings (cylinder He or Ar at 200 bars)
XXX916	4U	* Hydroxychrom USB 4U (hydrogen generator) max. 100 cc/min
XXX920		* AirmoDry
		* Option 160 cc/min Max for Hydroxychrom (hydrogen generator)
XXX918		* Air option instaled in Hydroxychrom XXX916 (for 2 FID maximum or for one chromaS)
		Sampling, calibration and cabinets
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) airmoREL included in 1 analyser -
XXX052		* Multiplexer automatic control - necessary from the 9th stream onwards
XXairmoREL		* airmorel : Card installed in the analyser, piloted by Vistachrom with 6 outlets and 2 inlets
XXX901	x	* airmoPUMP - analyser sampling pump (vacuum)
XXX915	x	* Sampling pump for 6 streams , needed with 6 ways multiplexer
XXX922	4U	* airmoCAL - CALIB with3 permeation tubes supplied (airmoPURE not included) zero/air/calib/cylinder
XXX922-MFC	4U	* airmoCAL MFC
XXX922D	4U	* airmoCAL D = (XXX922 + 4 points of cylinder dillutions) (airmoPURE not included) including airmoREL
XXX931		* CALIB : (calibration mounted inside a rack) with 1 permeation tube as standard
XXX937		* MFC : mounted inside the analyser or generator : piloted by vistachrom for sequence (methods)
XXX939	X	* External calibration oven with 1 permeation tube in the own box

XXX938		* External Peltier power supply
XXvalveCAL		* External calibration for reference cylinder (elctrovalve/Vistachrom + tubes)
XXvalveLPG		*LPG sampling (Liquid Propane Gas)
		* O2 extraction from water
XXPurge FID		* Purge FID (included purge and N2 generator XXX912) VOC extraction from water
XXPurge PID		* Purge PID (included purge and N2 generator XXX913) VOC extraction from water
M55000		* Presentation of MEDOR in Wall-mounted rack (in addition to the price of the system)
XXX041	33U	* Installation in a 19" cabinet
XXX043	33U	* Installation in an IP55 cabinet (watch the temperature)
	4U	* Pure gas generator : CL2 or O2 or H2S or H2 or ...
XXX060		* Explosion proof cabinet for installation in EX hazardous areas (for MEDOR & CHROMA) certifiable by the CSA
XXX061		* CSA international Certification Class 1 Div 2 Group C & D
XXX934		* Wall mounted rack (instead of 19" rack)
XXXPTFE		* Tube ¼ " PTFE Price per meter (Complete ref CS/TU/03052-PTFE)
XXXPOT		* Seperator for condensation 0.5 liter (Complete ref ME/PN/91300-XPOT)
		* Pump 24 V to be used in discontinu piloted by our analyzers (sequence)
P/N		Analysers Options
XXX071		* 24 Volt Power supply for analyser (Ref. CS/EL/00024-0000)
XXX072		* 24 Volt Power supply for supervisor (Ref IT/MO/00001-0001)
XXX932		* Catalyst for metanisor after column
		* Ambient temperature measurment (box /rack /sample) with display on vistachrom
		* Ambient pressure measurment : 0,5 to 1,5 bars (box /rack /sample) with display on vistachrom
XXX933		* Valve in a temperature regulated oven
XXX935		* Second TCD detector with electronic
XXXMAN		* Additional operating manual
XXXPLAN		* Studies and specific plans
		Starting-up & Training
		* Technical assistance and support contract on CHROMATOTEC equipments
XXXLAB1		* Labour - Starting-up and training on site or at our facilities - daily price
XXXLAB2		* Labour - Starting-up and training LEVEL 2 on site or at our facilities - daily price
		* Installation kit : fittings, connectors, specific tools
XXX801		* Documentation charge for specific requirements for transportation, and exportation purposes
XXX802		* Letter of Credit charges for less than 50 000 EUR total value
XXX803		* Letter of Credit charges for more than 50 000 EUR total value
XXX804		* Shipping and handling documents for Letter of Credit by DHL or FEDEX
XXX805		* Travel and accomodation - Package
XXX806		* Freight charges
XXX807		* Insurance on request (0,5% of the value)
XXX808		* Extended warranty : prolonged warranty over the second year (7% of the value of the equipments)
		Packaging
XXXPAC1		* Packaging for 5U rack in compliance with ISPM-15
XXXPAC2		* Packaging for 38U rack in compliance with ISPM-15