

## Applications for Tyre Industry

Headquarters of ECM Group is built around ECM ECO Monitoring, a.s. Bratislava and represents a network of subsidiaries and offices in countries of Central / Eastern Europe and Asia.



*The Territory*

The main focus of ECM Group are continuous monitoring systems for gases, liquids and particles for environmental and process control applications.

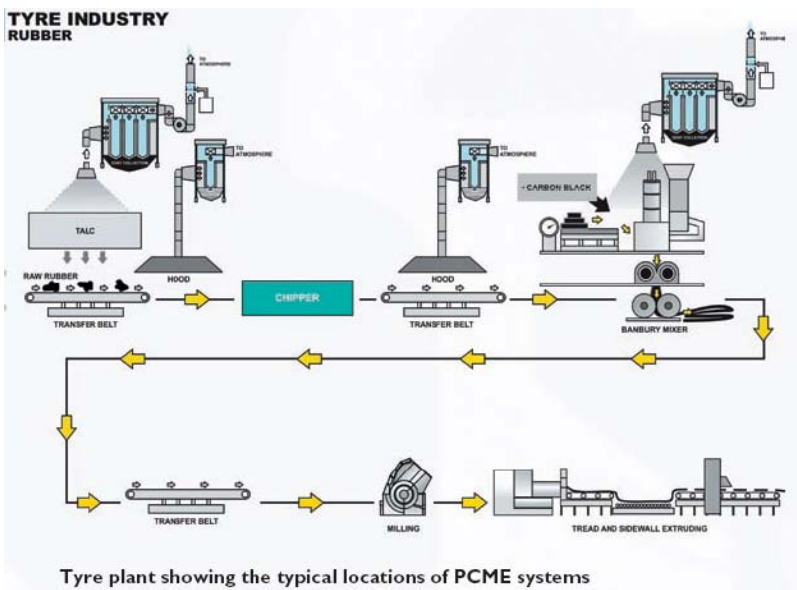
For tyre industry ECM Group is offering following solutions:

- Particle monitoring in filtration systems
- Process gas monitoring
- Working area monitoring
- Water quality monitoring
- Control systems for power generation
- Stack gas emission monitoring systems

## Particle monitoring

Tyre industry is operating high amount of filtration processes, mainly in recycling and manufacturing.

Schematic diagram of manufacturing:



Many filtration processes are involved. Particle monitoring is offering many advantages for operators.

Monitoring of filters is performed by electrodynamic particle monitors, a revolutionary new design of analytic instruments.



Electrodynamic Sensor with air purge

The main reason for monitoring is:

- Scheduled maintenance avoiding sudden accidents
- Longer lifetime of filtration elements
- Avoiding shut down time
- Reducing product loss
- Saving money

## Drivers / regulations

EU Directive 94/9 "ATEX"

- depend on Company policy

IPPC

- Bref "large volume organic chemical Industry"
- Specified as class "S"
- Aim for concentration should be below 10mg/m<sup>3</sup>

US / General

- Carbon under Suspect for creating Cancer

Savings

## Process gas monitoring

Monitoring of gaseous compounds is preferably provided IR and paramagnetic analytic instrumentation.



Process gas monitoring is increasing effect of process control systems.

## Working area monitoring

Working area in tyre industry is to be monitored for gaseous and aerosol pollutants. ECM offers a broad range of stationary and portative detectors for monitoring of toxic gases.



Beyond classical detector toxicity of several compounds which have to be monitored on very low levels while some of them are carcinogenic already at ppb levels of concentrations, portative and stationary compact GC solutions must be applied.



Particle monitoring in working area is to be monitored with portative or personal monitors and sampling pumps.

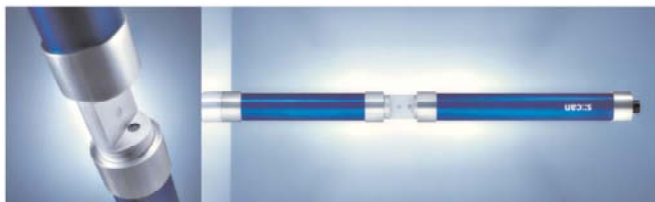


Noise and vibration monitoring must be kept within health limits. ECM is providing instrumentation for control.



### Water quality monitoring

Tyre industry is potential pollutant of water. ECM is offering a compact spectrometric system to monitor both organic and inorganic pollution of process water effluents of tyre plants.



Parallel to qualitative components flow, temperature and pressure monitoring are also essential tools for effective process control.

### Power generation

Tyre industry is energy demanding industry. Power generation requires O<sub>2</sub>/CO monitoring for optimization of combustion process.



Flow, pressure, temperature monitoring, heat value analysis of fuels, burner flame monitoring, flame igniters are all components offered by ECM for energy optimization.

Stacks of power generation has to be provided with a stack gas **emission monitoring system**.



The emission monitoring systems usually monitor SO<sub>2</sub>, NO<sub>x</sub>, CO gaseous pollutants, further O<sub>2</sub>, flow, particle emissions, temperature and flow. Water and CO<sub>2</sub> monitoring may be also required.

A special data system has to perform data acquisition, archiving presentation and processing in accordance to EN14181 standard and local regulations.