



ACOM CO Detection

English

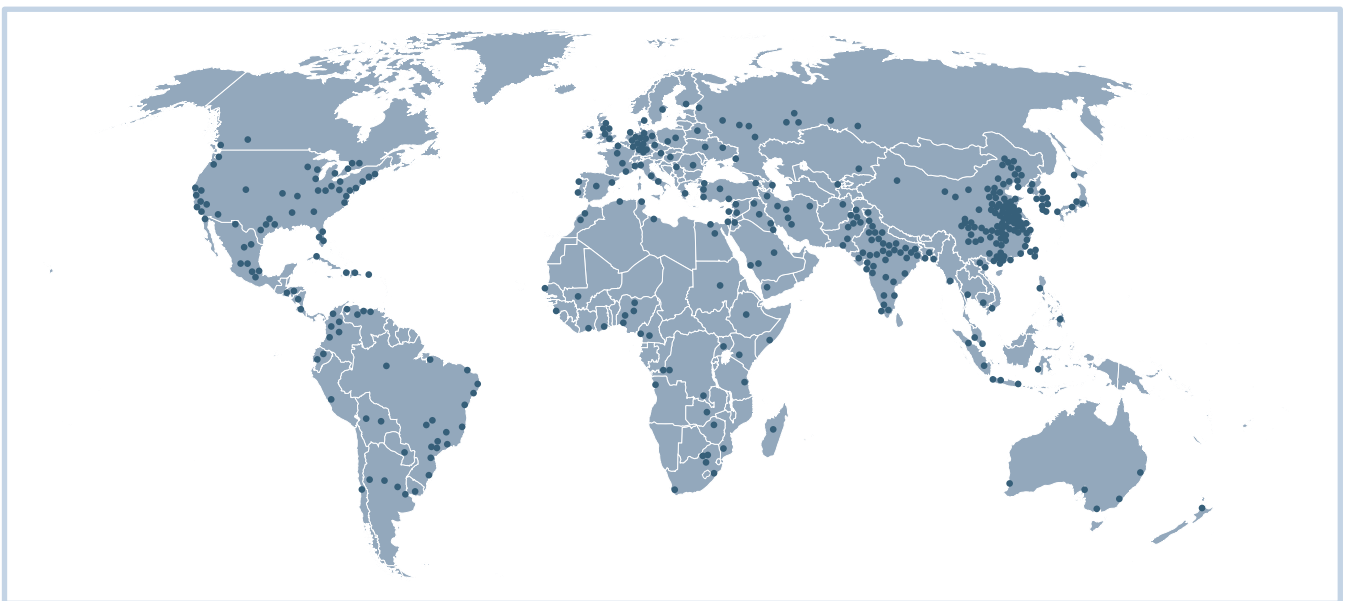
# The ATEX Safety Concept for more than 25 years

The Atex Safety Concept is to phase necessary Safety Measures into the process flow of a production facility with no or as little as possible impact on plant performance. To achieve this Atex engineers are and have been working over many years very closely with all types of process industries, ranging from wood, food and feed to the pharmaceutical/chemical as well as metal industries:

- to understand the specific needs of different production facilities
- and to develop tailor made solutions addressing the specific needs for the large variety of processes.

As the internationally leading developer of advanced Fire and Explosion Prevention and Protection Systems Atex understands its customers need for reliable solutions that prevent events from happening by producing early warnings and that, in case of an event, facilitate the appropriate protection at the same time as keeping down time and thus production loss to an absolute minimum.

To achieve this Atex uses its large test and manufacturing site at its Headquarter in Germany for product development and industrial scale testing



**ATEX Prevention Systems** installed around the world are proof for the successful concept



## Prevention through control: ATEX CO Detection System Generation II

The ACOM Detection System continuously analyses in and outlet airstreams of a drying process for volatile pyrolysis matter, thus detecting the earliest signs of thermal decomposition and the formation of hot spots, which means that they detect self-ignition processes whilst they are still forming and ideally long time before they become a Fire and/or Explosion Hazard.

The acceptable levels of pyrolytic matter in the exhaust air stream, before different alarm stages are triggered, depend on the applied safety concept as well as on a number of material properties and process conditions such as formation of pyrolytic matter during different self-heating stages and amount of air flow during the drying process.

## ACOM Detection System

Where, in a drying process or even during storage, process conditions can lead to self-heating and formation of ignition sources the ACOM Detection System will through multiple alarm levels give an early indication and/or take appropriate counter measures (depending on the safety concept) ranging from warnings to emergency shut down and deluge activation.

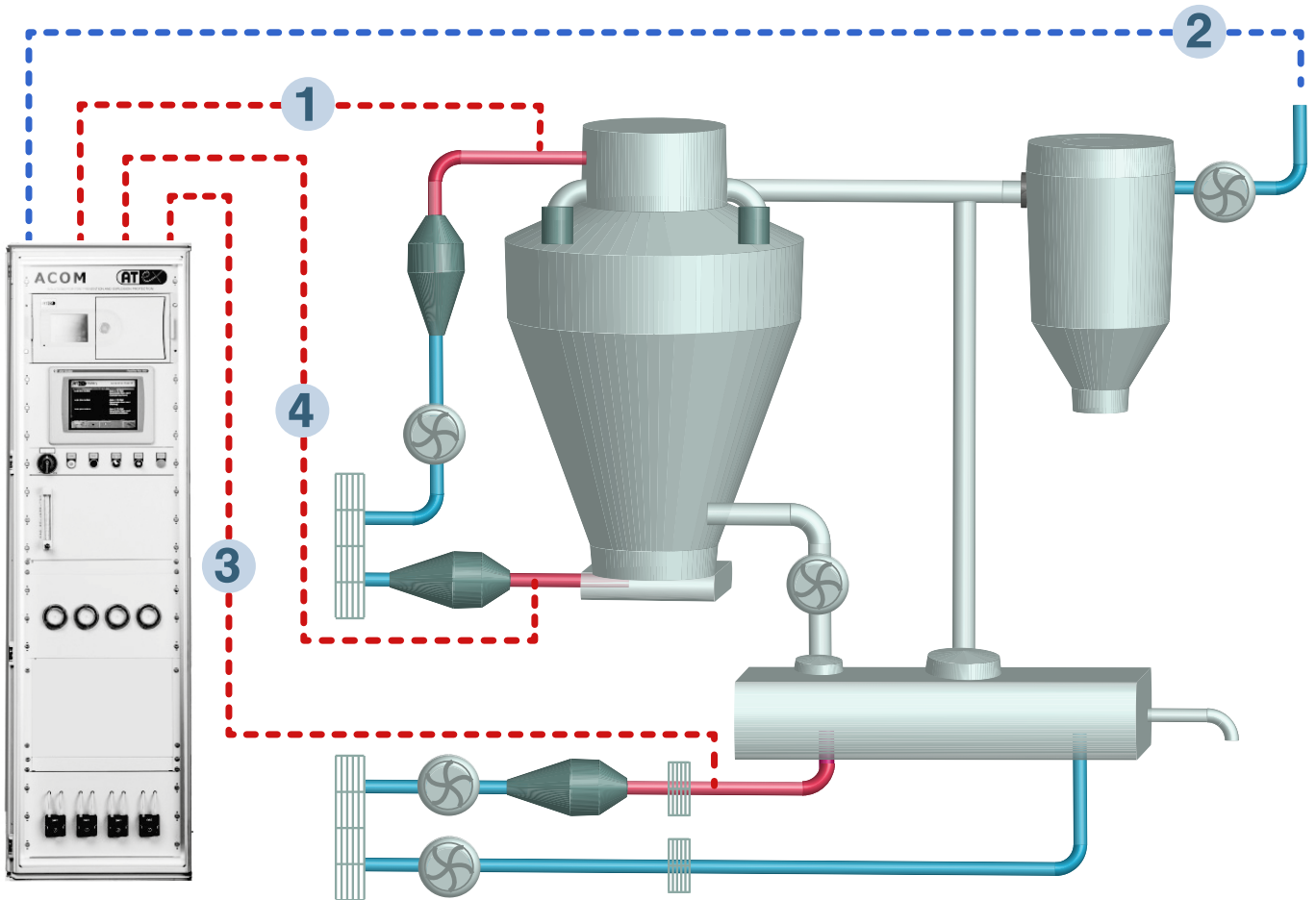
More than 500 products have so far been tested for their potential of producing enough pyrolytic matter, when exposed to excessive heating.

A typical example is shown in the picture below, where a heating deposit of milk powder in a spray dryer has been detected. After removal the dryer could go immediately back into production without activation of deluge or other protection measures.



Smoldering deposit detected by ACOM Early Fire Detection System

## Continuous air sampling



- 1 Main air
- 2 Exhaust air
- 3 Inlet air EFB
- 4 Inlet air IFB

The system continuously samples all incoming airstreams as well as all outgoing airstreams of the process.

The absolute CO concentrations for both, inlet and outlet airstreams are measured at the same time.

This unique measurement principle allows to immediately eliminate CO entering into the process from such generated in the process.

Both continuously measured CO values from air inlet and air outlet are converted directly into delta CO values defining the trigger levels for the alarms and counter measures.

The adopted measuring principle even allows for setting different alarm levels for product change and/or varying process conditions (varying Self-heating properties, mass flow of air etc., one of our customers even uses a slow increase of delta CO to define the dryers cleaning frequency).





## Mass flow controllers for precise process control

ATEX ACOM CO Detection Systems come with mass flow controllers (MFC) installed. These devices are used to measure and control the flow of the process gases to the ACOM System.



### Benefits of Mass flow controlling

- Direct measurement without a bypass tube, no cross reaction against humidity
- Operates around the set-point flow-rate.
- Early flow drop warning, generation of Minor Faults prior to triggering Major Fault Level.
- Self adjustable valve to compensate flow rate deviations.
- Stable Ratio measurement because of automated flow rate control

### Most unique features only ATEX can offer:

With the help of the installed Mass Flow Controllers the ACOM can automatically react to different process situations:

- Automatic flow performance adjustment for different products
- Automatic alarm level adjustment for different products
- Automatic adjustment of flow performance to suit any weather conditions e.g. summer/winter mode



## Controlled air sampling by special designed valves

The extraction valves for process air are specially developed for the food industry. This means significantly less maintenance and longer process runtimes for ATEX customers.

Our in-situ filters can optionally be equipped with blow-back function and Butterfly valve.

- Full Surface Filter element specially designed by ATEX
- Approved for high hygiene applications
- No mesh / no product entrainment into the filter compared to a standard filter elements
- optional Blow back function
- Less maintenance, longer production runtime



The blow back function can be set „active“ during cleaning in process (CIP). The filter element is thus automatically cleaned and should remain in the process during the CIP interval.



## Professional and fast maintenance via Secomea® module

With our remote control module option, the customer will, if needed, be able to receive prompt guidance and system diagnostics from the ATEX team, without losing valuable production time.

- Remote monitoring of system status.
- Live problem troubleshooting from Atex HQ.
- Optional remote maintenance and report generation.
- Online software upgrades of Atex CO system possible.
- End-to-End data security and Encryption certified.
- Connection can be established thru Ethernet/Wifi or Mobile Cellphone Network.
- Can operate as a carrier of alarms, system faults and warnings to be transmitted through sms or email messages.
- Built-in firewall, AES and x.509 certificates for maximum security.



In case of Networking problems with the chosen location of the cabinet, Atex is able to supply an Antenna to extend the Network range of the Secomea® module. Coax cable length available from 10 to 25 meters.



worldwide

## explosion protection by ATEX

**ATEX Protection Systems and Safety Solutions have been developed by Fire and Explosion Protection experts with extensive experience from industry and safety technologies.**

The ATEX Fire and Explosion Protection Concept combines the practical requirements of a production oriented industrial installation with the appropriate safety measures. This guarantees the undisturbed operation of your plant and enhances its productivity. The advantage Systems is recognised worldwide.

### Germany

#### **ATEX Explosionsschutz GmbH**

Auf der Alm 1  
59519 Möhnese  
Deutschland

Tel: +49 2924 8790 0  
Fax: +49 2924 8790 455

info@atex100.com  
www.atex100.com

#### **ATEX Explosionsschutz GmbH**

Niederlassung Südwest  
Akazienweg 8  
64665 Alsbach-Hähnlein  
Deutschland

Tel. +49 6257 697 53  
Fax +49 6257 697 57

info@atex100.com  
www.atex100.com

### United Kingdom

#### **ATEX Explosion Hazards Limited UK**

Unit 7 Cranford Court  
Hardwick Grange, Woolston  
Warrington, Cheshire, WA1 4RX

Tel: +44 1925 755153

info@explosionhazards.co.uk  
www.explosionhazards.co.uk

### USA

#### **ATEX-Explosion Protection, LP**

Suite 130  
2629 Waverly Barn Road  
Davenport, FL 33897  
USA

Tel. +1 863 424 3000  
Fax +1 863 424 9797  
sales@atexus.com  
www.atexus.com

### New Zealand

#### **Atex Fire and Explosion Protection Ltd. Main Office**

630D Great South Rd  
Ellerslie 1051  
PO Box 58724, Botany 2163  
Auckland/New Zealand

Tel: +64 9 215 8885  
Fax: +64 9 274 3823

info@atexnz.com  
www.atexnz.com

### Service Australia

#### **Atex Fire and Explosion Protection Services Pty Ltd.**

2/85 Triholm Avenue  
Laverton VIC3028  
PO Box 7206, Point Cook VIC3030  
Australia

info@atexau.com  
www.atexau.com

### Spain

#### **ATEX Iberica**

C/ Tirso de Molina nº 36  
08940 Cornellá de Llobregat  
Barcelona  
Spain

Tel: +34 674723209

info@atexiberica.com  
www.atexiberica.com

### Japan

#### **ATEX Fire and Explosion Protection, Ltd.**

TOC Ariake West Tower 7F  
3-5-7 Ariake  
Koto-ku, Tokyo,  
135-0063 Japan

Tel +81 3 6457 1311  
Fax +81 3 6457 1341  
t.suzuki@atexjapan.com  
www.atexjapan.com