



# Sustainable Management of Dangerous Substances in the Industrial Gas Industry

*Christina Matthes, Industrial Hygiene EA, Air Products*

*Erika Ustailieva, International Business Developer, Cosanta*

*12-13 November 2019, Bilbao*



EU2019.FI





1. Cosanta: who we are and what we do?
2. Stoffenmanager® - a sustainable solution for safe management of chemicals
3. Sustainable chemical management in the production plants of Air Products
  - Who we are?
  - Drivers for Sustainable Chemical Management
  - Successful Chemical Management Implementation Process
    - Main Issues
    - Implementation
    - Risk Assessment Review
    - Communication to workforce
4. Lessons learned

# Cosanta is ...

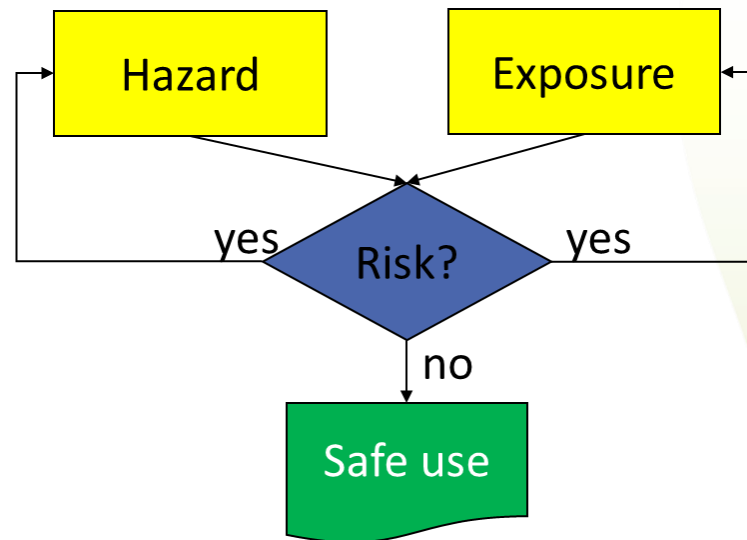
- Chemicals Management Service Provider
- We support enterprises of all sizes to comply with the regulatory and broader ethical/sustainability requirements by building a sustainable and sound management of chemicals within their organisations and supply chains
- Consultancy, training and online software system Stoffenmanager®
- Social enterprise
- EU-OSHA partner supporting the campaign

# Our Mission is...

*.....To raise awareness of dangerous substances at workplace and empower owners/operators to evaluate their own workplaces for hazards and risks and to focus resources on practical control solutions.....*

# Four Steps Approach for Chemical Risk Assessment

1. Determine presence of chemical hazards
2. Assess the risks:
  - ✓ Prioritization
  - ✓ Quantitative exposure estimate
  - ✓ Measurements
3. Apply preventive and control measures
4. Communicate, instruct and train

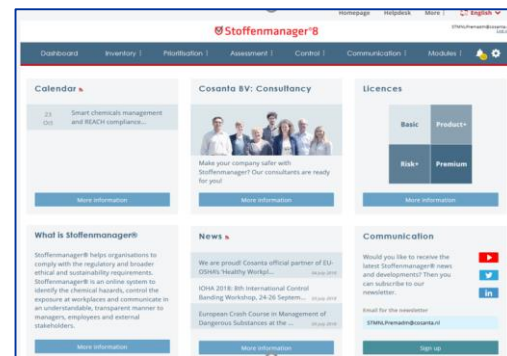


**Add 2:** Using exposure model instead of measurements. Cost savings!

# What is Stoffenmanager®?

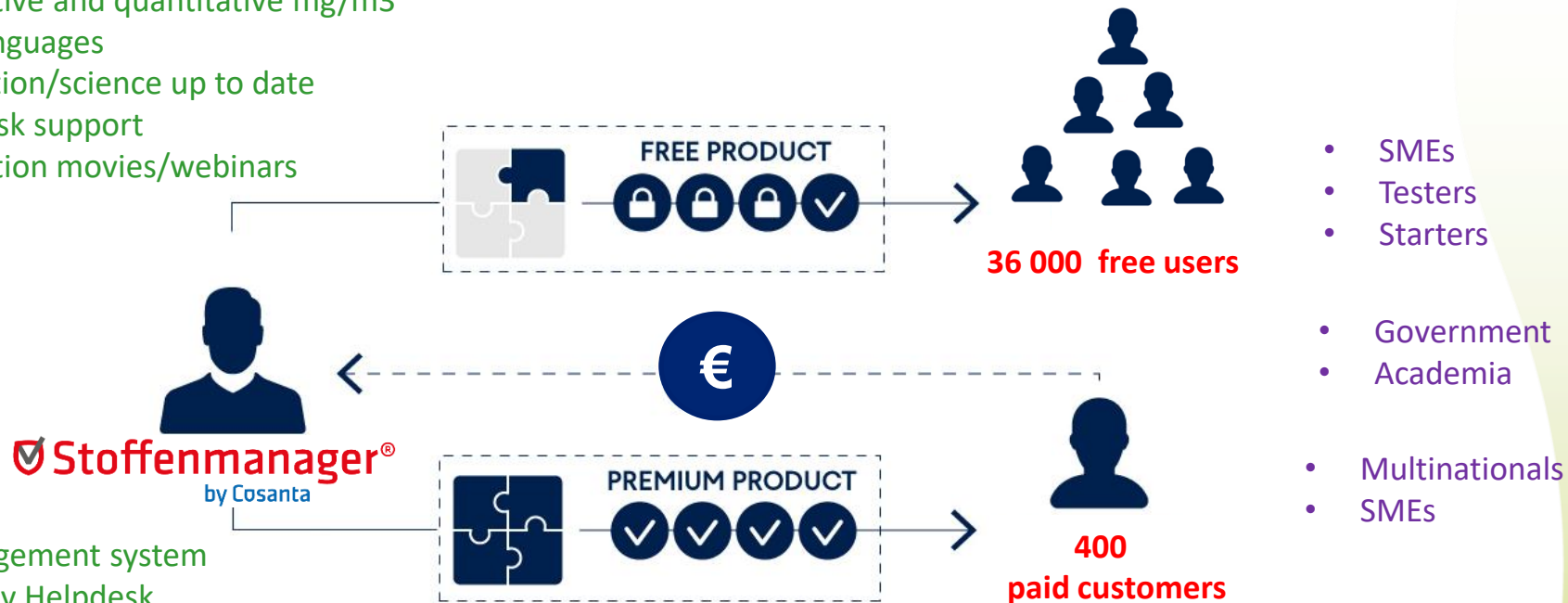
► Online system to identify chemical hazards, control exposure at workplaces and communicate to employees, managers and external stakeholders.

- **Validated quantitative RA model** > 7000 measurements
- **EU chemical legislation (REACH R.14, CAD, CLP )**
- **Reliability** - independent **International Scientific Advisory Board**
- **Management and communication** functionalities
- **Multilingualism** 10+ languages
- **Technical and expert support** for all users
- **Sustainable freemium business model**



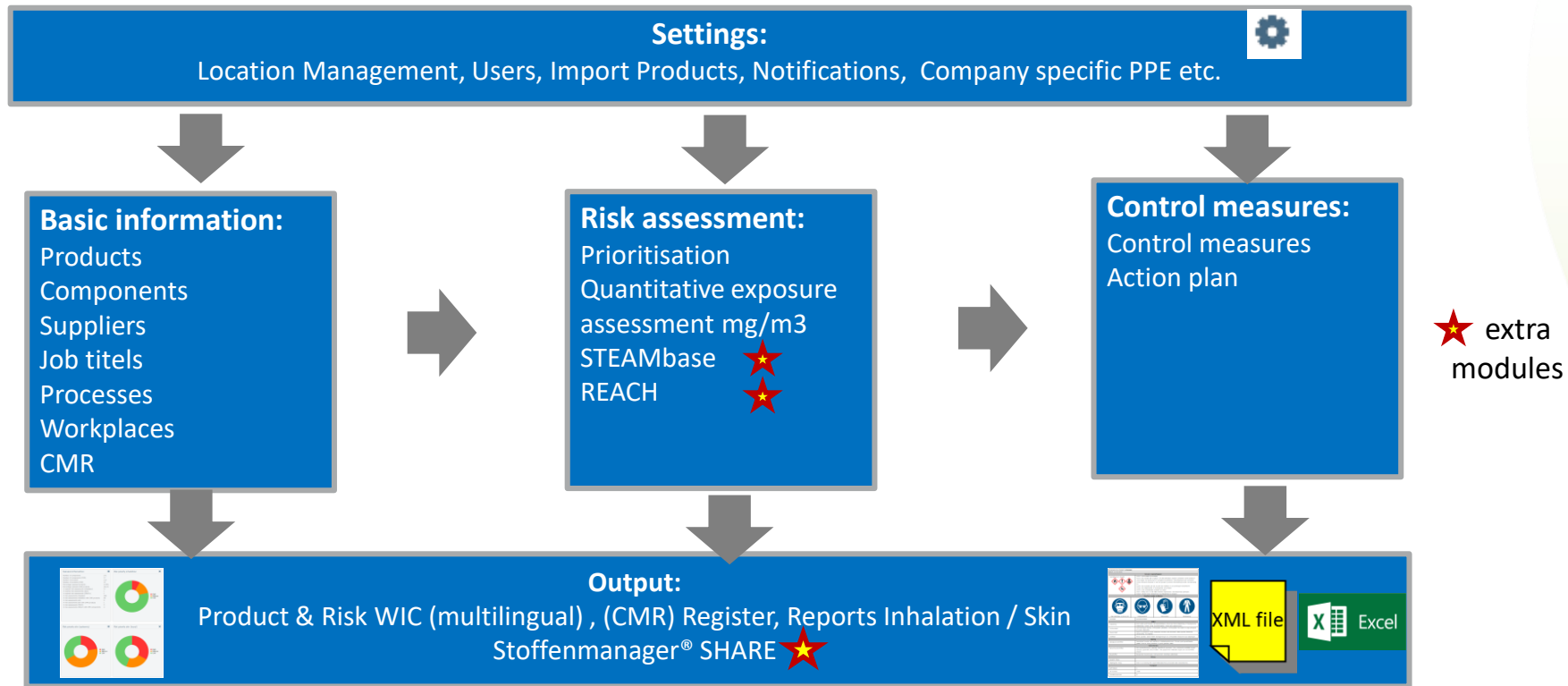
# Our freemium business model guarantees long term sustainability of Stoffenmanager®

- Reliable Risk Assessment Tool:  
qualitative and quantitative mg/m<sup>3</sup>
- 10 + languages
- Regulation/science up to date
- Helpdesk support
- Instruction movies/webinars



- Management system
- Priority Helpdesk
- Training/implementation
- Consultancy/hot line

# Stoffenmanager® Building Blocks





# Good Practice Example

## Sustainable Chemical Management in the Production Plants of Air Products in Europe

# Air Products is...

...a leader in the global industrial gas industry with:

Established leading positions in diverse end markets, including energy, chemicals, metals, manufacturing and electronics

Growth opportunities driven by Energy, Environmental and Emerging markets

Complementary equipment businesses

A multi-billion project backlog with long-term contracts that generate consistent and predictable cash flows

Leading positions in key growth regions including profitable joint ventures

A prudent capital structure with a strong balance sheet supporting long-term profitable growth

On the NYSE (APD)



# Our Goal

**Air Products will be the safest, most diverse and most profitable industrial gas company in the world, providing excellent service to our customers.**

“We want to ensure we are providing opportunities and the right environment for everyone to contribute and succeed, regardless of their gender, color, race, religion, orientation, country of origin or any other dimension of diversity.”

– Seifi Ghasemi,  
Chairman, President and Chief Executive Officer

# Total Safety Philosophy

Maintaining a safe workplace is a fundamental and moral responsibility.



We take the approach that all accidents are preventable. The only acceptable goal is **zero** accidents and incidents. We will strive toward that goal in **every location, every day**.

# Business Segments

Air Products reported fiscal 2018 results under five segments:

- |   |   |
|---|---|
| Industrial Gases –                      | The <b>regional Industrial Gases</b> segments produce and sell atmospheric gases such as oxygen, nitrogen, and argon, and process gases such as hydrogen, carbon monoxide, helium, syngas, and specialty gases.   |
| ▪ Americas                              |   |
| ▪ EMEA (Europe, Middle East and Africa) | We serve customers in many industries, including refining, chemical, gasification, metals, electronics, manufacturing, and food and beverage.   |
| ▪ Asia                                  | We distribute gases to customers through a variety of supply modes, including liquid or gaseous bulk supply delivered by tanker or tube trailer, cylinders and dewars or small onsites (cryogenic or non-cryogenic generators). For large-volume customers, we construct an onsite plant adjacent to or near the customer's facility or deliver product from one of our pipelines |
| Industrial Gases – Global               | The <b>Industrial Gases – Global</b> segment includes atmospheric sale of equipment businesses, such as air separation units and noncryogenic generators. The equipment is sold worldwide to customers in a variety of industries.  |
| Corporate and Other                     | The <b>Corporate and other</b> segment includes three global equipment businesses: liquefied natural gas (LNG) sale of equipment and process technology, liquid helium and liquid hydrogen transport and storage containers, and turboexpanders and other precision rotating equipment.   |

# Drivers for Sustainable Chemical Management

- Legal requirements
- External / internal audits
- Incidents



## Chemical Risks

- Operations – normal operations and shutdown activities
- Maintenance / Garage
- Customer Engineering Technicians on customer sites


# Chemical Management Implementation – our experience

- Buy in from all levels of the business – operators to General Manager
- Process needs to be easily implemented
- Chemical Risk Assessment process needs to be completed easily
- Robust process to bring new materials onto a site - make individuals accountable for what they bring onto a site
- Output of the Risk Assessment (Work Instruction Card) needs to add value to the end user

## What have we tried...

- **Tried various methods of assessing risk over the past 15 years**
  - Site completes the chemical risk assessment
  - SME (Industrial Hygienist) writing the risk assessment

- **Current solution**
  - External Software (Stoffenmanager®)

CHEMICAL AGENT RISK ASSESSMENT (CARA) FORM			
OVERALL RISK CATEGORY			
General Information		Assessment	
Facility		Assessment	
Designated Work Area		Assessment	
Manager		Review Date	
CARA Assessor		New Process	
TASK/PROCESS			
Task(s) Description	Maintenance Tasks		
Task Frequency	Infrequently	Task Duration	
No. of Operators	1-2 operators	Condition	
Job Role	Operator	Skill Level	
Quantity of Substance used	Small	Potential for	
SUBSTANCE(S) IN USE			
			
Substance/Trade Name	Synthetic Air	SAP Number	
Supplier	AP	SDS Review	
Hazard Classification		GHS Code	
Factors to Consider			
Can the method of work be changed so the substances are no longer needed?			
Can the substances be substituted by a less or non-hazardous alternative?			
Engineering Controls			
Control	Type(s)		LEV tested and
1	General Ventilation		
2			
3			
Comments			
Administrative Controls			
Control			

[illegible]



# Main Issues

- Need a solution for Europe – spread across all parts of the continent
- Need a solution for all European languages as need the assessment output in local language to be effective
- Multiples sites
- Similar sites doing same tasks but have many different hazardous substances?

# Implementation

- Started with largest site in each country
- Master inventory list
- Other sites compare substances to this list
- Easy to then copy assessments for same task and hazardous substance
- Cost saving
- Introduce a chemical management plan to prevent additional products coming to site

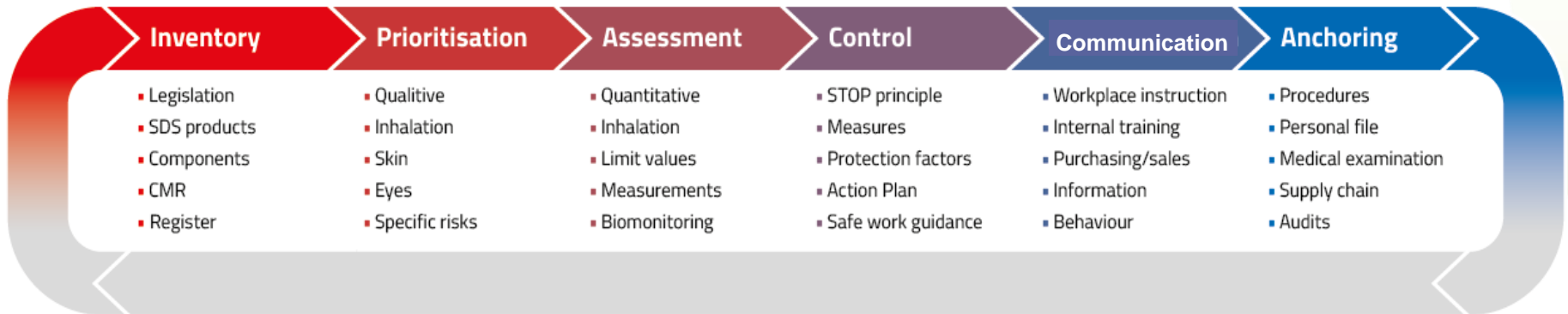
# Communication

- Easily communicate the results to the team
- Focus the training and procedures

# Risk Assessment Results using Stoffenmanager®

- **Oversight of all countries using the software – FR, DE, PL, NL, UK, CZ, BE**
- **Good review with action plan for high risk assessments**
  - Additional control measures
  - Air monitoring for specific tasks
- **CMR identification and oversight has been biggest benefit**
  - Plan to eliminate and/or substitute
- **Better communication to the end users**

# Stoffenmanager® Implementation STEPS



# Communicate Effectively to the Workforce

Printing of  
Product Labels:  
L,M,S,XS

Stoffenmanager® SHARE: Cosanta B.V. English (English)

Product WIC Risk WIC SDS

X2018 | All locations | View in HTML | Stoffenmanager®

X2018 - An Example WIC  
X2018 - Product Example

X2018 - An Example WIC 2  
X2018 - Product Example

X2018 - Brushing / Rolling with styrene containing product  
X2018 - Product Example  
X2XML file

X2018 - Spraying with styrene containing product  
X2018 - Product Example

X2018 - WIC 10  
X2018 - Product Example

X2018 - WIC 3  
X2018 - Product Example

X2018 - WIC 4  
X2018 - Product Example

X2018 - WIC 5  
X2018 - Product Example

X2018 - WIC 6  
X2018 - Product Example

X2018 - WIC 7  
X2018 - Product Example

X2018 - WIC 8  
X2018 - Product Example

X2018 - WIC 9  
X2018 - Product Example

Dissemination of  
Workplace  
Instruction  
Cards

Working safely with styrene containing product

Location / Department: ...  
Product: ...  
Version: ...

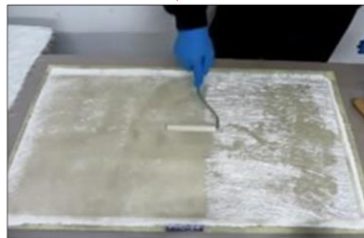
**1. General information**

1.1.1. General information: ...  
1.1.2. General information: ...  
1.1.3. General information: ...  
1.1.4. General information: ...  
1.1.5. General information: ...  
1.1.6. General information: ...  
1.1.7. General information: ...  
1.1.8. General information: ...  
1.1.9. General information: ...  
1.1.10. General information: ...

**2. Potential protection**

2.1. Potential protection: ...  
2.2. Potential protection: ...  
2.3. Potential protection: ...  
2.4. Potential protection: ...  
2.5. Potential protection: ...  
2.6. Potential protection: ...  
2.7. Potential protection: ...  
2.8. Potential protection: ...  
2.9. Potential protection: ...  
2.10. Potential protection: ...

Electronic data  
exchange



# Lessons Learned

## What worked... 😊

- Finding a solution that was in local language
- Easy to use Risk Assessment tool for local teams
- Solution where we could easily share information between business groups in country
- Risk assessment calculation completed by Stoffenmanager
- SME has oversight and can provide input for next steps

## What didn't work so well 😞

- Ask local team to write Risk Assessment without a robust tool

# Success Factors

## Current Solution Stoffenmanager®

- Multilingual
- User friendly
- Regulation up to date
- Continuous development

## Dedicated Industrial Hygiene EA at Air Products

- Vision and decision power
- Good understanding of Stoffenmanager®
- Approach to engage and train people

## Good partnership, transparency and trust

- Additional Workplace Instruction Cards languages by Cosanta
- Trainings and support by Cosanta
- Development input and translations by Air Products

# Thank You!

Christina Matthes  
MATTHEC2@airproducts.com

Erika Ustailieva  
erika.ustailieva@cosanta.nl



**Cosanta** | Solutions for  
chemical risks