



Science For A Better Life

Bayer Group

Bayer CropScience subgroup Industrial Perspective
SMS Legal frame , Execution and Sustainable Evolution

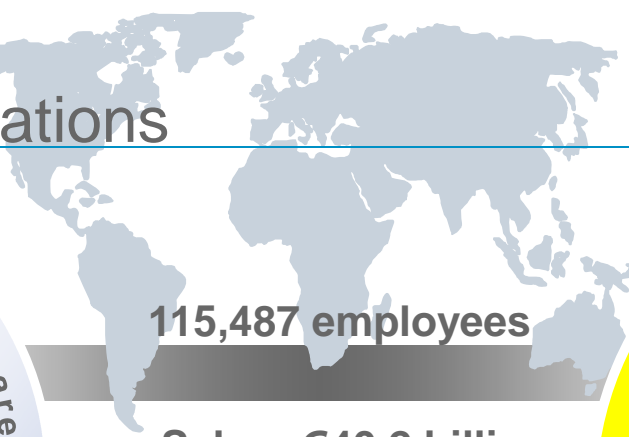
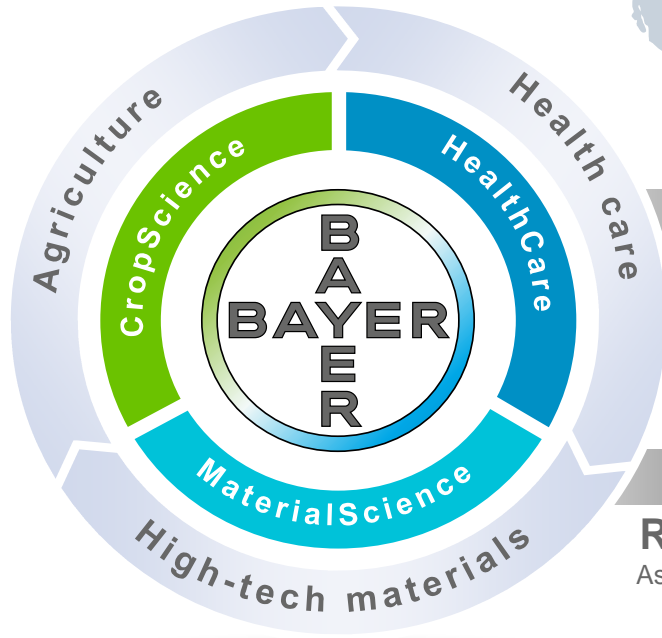
Safety Management Systems in Multinational Companies

Mutual Joint Visit Workshop for Seveso Inspectors

17-19 September 2014, Arona, Italy

Bayer Group

Worldwide Main Indications



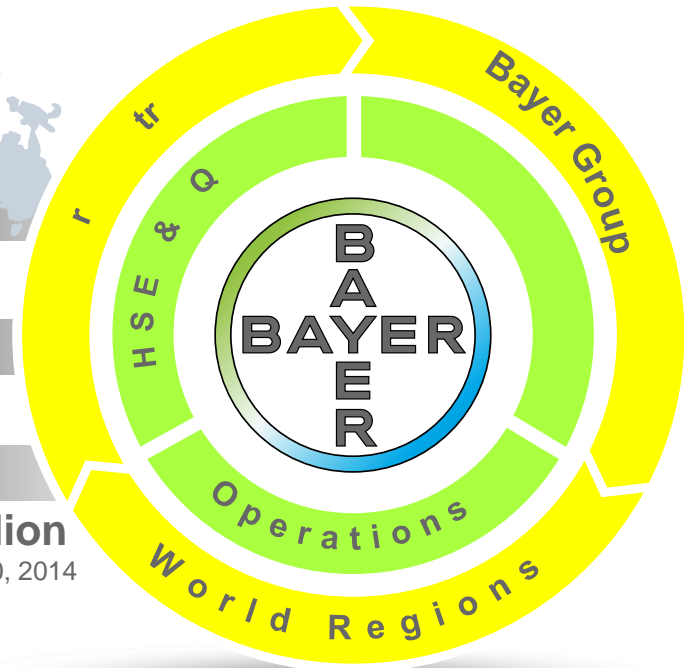
115,487 employees

Sales: €40.2 billion

289 subsidiaries

R&D expenditures: €3.2 billion

As of December 31, 2013 / Employees: June 30, 2014



Sustainability ,Plant & Process Safety , Occupational Health and Legal Compliance are Integral Part of the Corporate Strategy

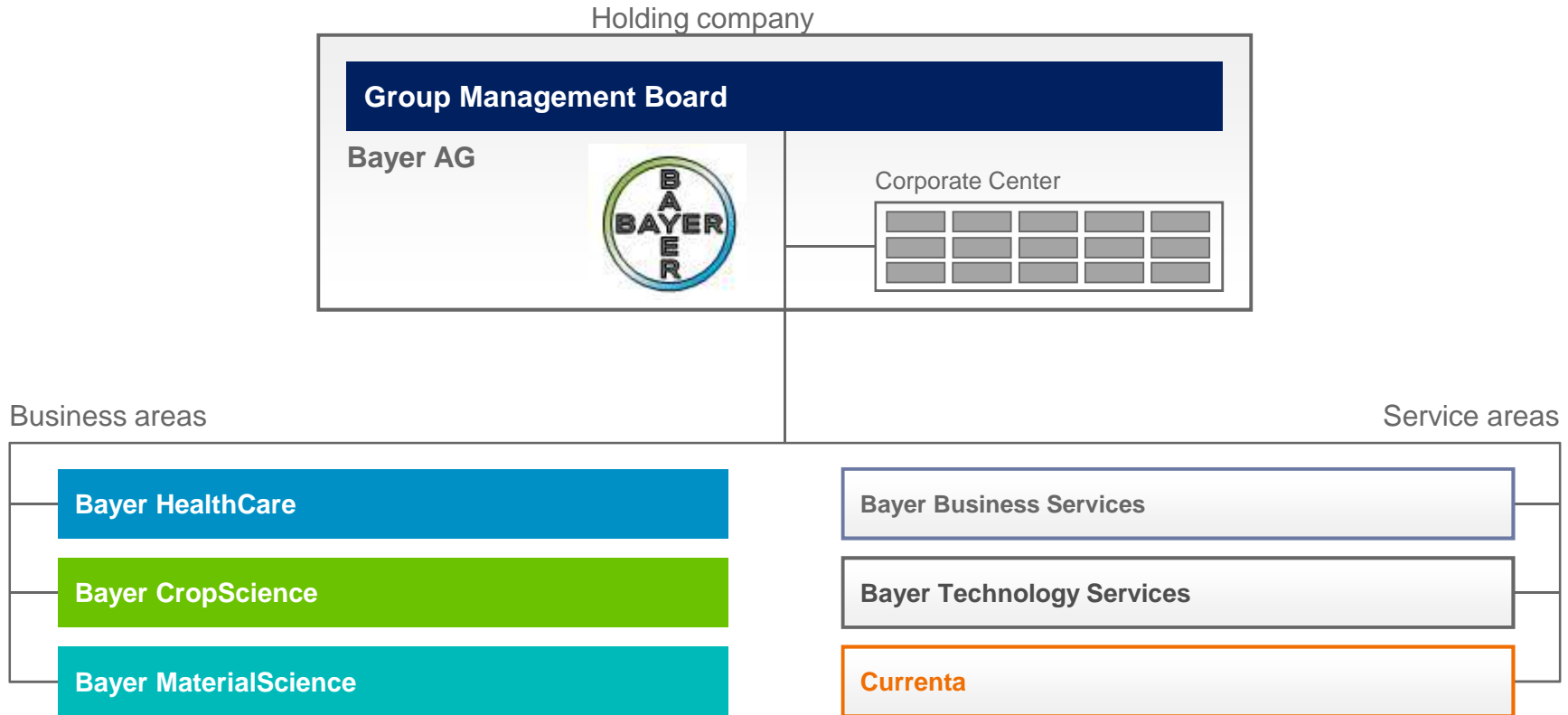


Safety Management Systems in Multinational Companies

Mutual Joint Visit Workshop for Seveso Inspectors – 17-19 september 2014 - Mauro Provezza BayerCropScience srl Italy \

Bayer Group

Structure info's to understand the Guidelines Uniformity



To maintain a strong alignment between the mission and objectives of the **Bayer Group** similar structures are applied in different countries .
In some countries **as Italy** for each Business area there is a corresponding Industrial Area with own specific legal frame and duties.

Bayer Group

Rules and Regulations main indications (1)



Objectives

Information about validity and scope between internal and external Rules and Regulations

Information about Bayer Corporate and Subgroups internal regulations for Process and Plant Safety.

Priorities



- ✓ The stricter regulation has to be applied.
- ✓ In case of conflicts with legal regulations the legal requirement have to be followed .
- ✓ Indications supported by Internal Rules have to be adapted to the frame required by local regulation

Bayer Group Rules and Regulations (2)



MARGO management regulations online

de | en | es | fr

Home Page | Regulations | Circulars | Support

Intranet Links
 Bayer Holding
 Bayer HealthCare
 Bayer CropScience
 Bayer MaterialScience
 Bayer Business Services
 Bayer Technology Services
 Currenta
 Mail@Support

General Conditions of Use
 Privacy Statement
 Imprint

Welcome to MARGO
 the intranet library for international management regulations and circulars in the Bayer Group.

Management Regulations
 For a complete list of valid regulations, [click here](#). To see which document types are available, move your mouse over the "MARGO magnifying glass". Full details can be found in the Directive on management regulations.

Regulation Finder

Search

Filter

Country
 --- Please select ---

Target Group
 --- Please select ---

Scope
 --- Please select ---

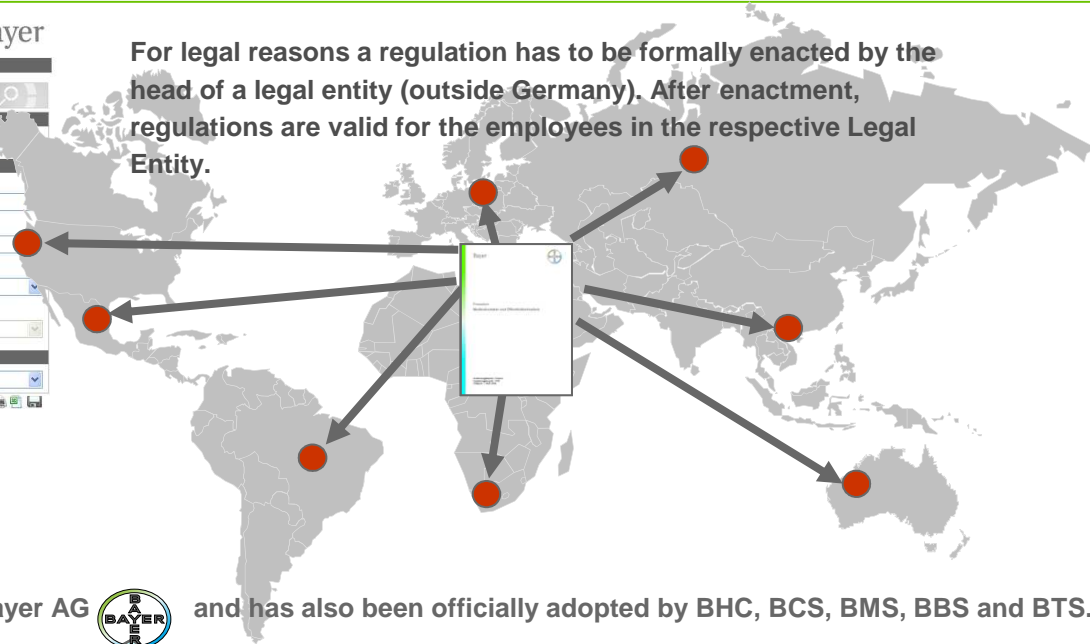
Regulation Owner
 Please first select Scope

Document Language
 English (en)

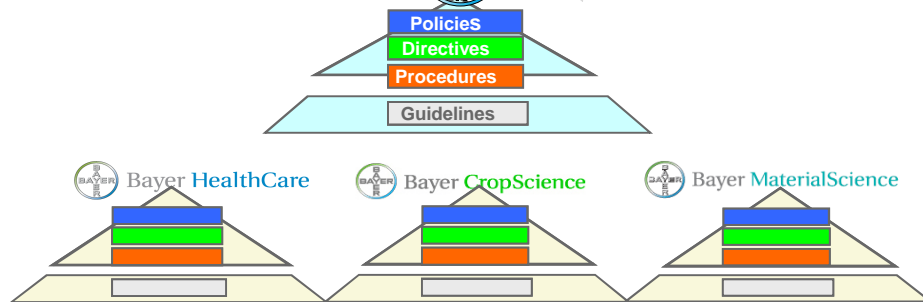
1. Policy **2. Directive**
Guideline **3. Procedure**

Circulars
 For a complete list of published circulars, [click here](#).

For legal reasons a regulation has to be formally enacted by the head of a legal entity (outside Germany). After enactment, regulations are valid for the employees in the respective Legal Entity.



Bayer Group Management Regulations are valid for Bayer AG  and has also been officially adopted by BHC, BCS, BMS, BBS and BTS.



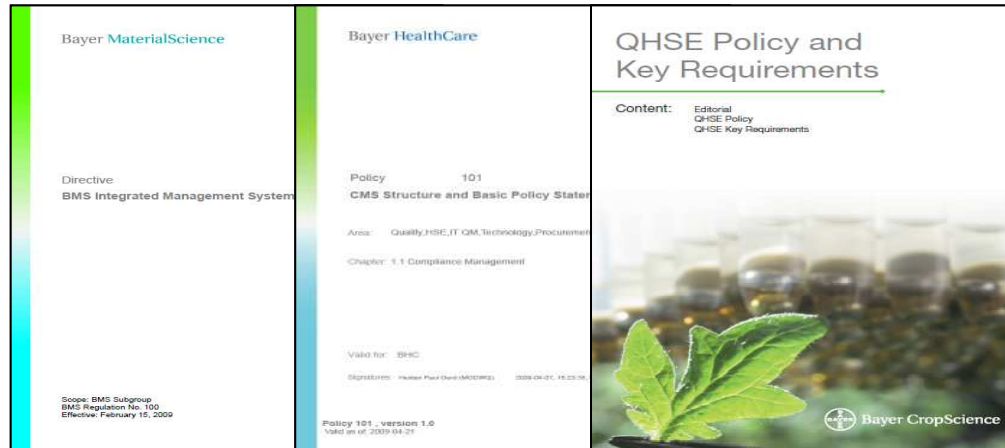
Management Regulations describe **strategic objectives** of the subgroup (**Policy**), **internal roles and responsibilities** of the subgroup (**Directive**) or **operational instructions** detailing specific workflows (**Procedure**) in the subgroup plant.

Safety Management System (SMS)

Every subgroup has its own implementation



Implementation at Bayer Subgroup and Country Legal Entity



Implementation at the sites (partially indications)

- ✓ Every site is responsible for the local implementation
- ✓ Consider global and local rules
- ✓ SOPs, roles and responsibilities
- ✓ Emergency measures (IEP , EEP , Unit emergency response, planning)
- ✓ Training
- ✓ Communication



Safety Management System (SMS)

Regulations within Bayer Group

The **Best Practice Process and Plant Safety Compendium**

As integral part of Bayer's commitment to sustainability

.....to ensure that our operations do not pose any inappropriate risks to employees, the environment and community.

.....excellence in the field of Process & Plant Safety is therefore indispensable

- ✓ Best Practice "Plant & Process Safety Compendium" complements.
- ✓ Bayer Group Process & Plant Safety Directive and its binding attachment "Safe Design and Operation of Processes and Plants"

Must be applied in order to achieve effective results.

Best Practice
Process and Plant Safety
Compendium

Group No. 1928 (Edition: 2)

Scope: Group
Effective: March 1, 2013

Safety Management System (SMS)

Regulations within Bayer Group



The **Group Regulation 2019 Directive Management of Change** applies for temporary and permanent changes on

- ✓ Technical installations
- ✓ Processes and procedures
- ✓ Organizational structures
- ✓ Products

The **Group Regulation 2033 Manag.of Change and Work Permit for Hazardous Work Procedure** gives a framework for an adequate

- ✓ Management of Change of technical and organizational changes (temporary and permanent)
- ✓ Handling of Work Permit procedures for hazardous work

Safety Management System (SMS)

Regulations within Bayer CropScience Subgroup



The **Guideline SA.G.13.0 Incident Investigation**

provides assistance to the Sites/locations to establish

- ✓ Written, effective, and efficient “fundamental cause” incident investigation, analyses, corrective action planning process
- ✓ Incident communication management system in order to share experience about the incidents occurring in our Company
- ✓ Appendix .
 - Process flow
 - Questionnaire
 - Incident investigation method Casual Tree
 - Case study
 - Process table

Safety Management System (SMS)

Focus point within Bayer Group



Legal requirements

Europe Seveso directive as basis, and similar rules in other countries throughout the world .

Therefore in effect throughout all Bayer Group

Implementation in every subgroup and at every site necessary

Everyone needs to know his / her roles and responsibilities within the SMS

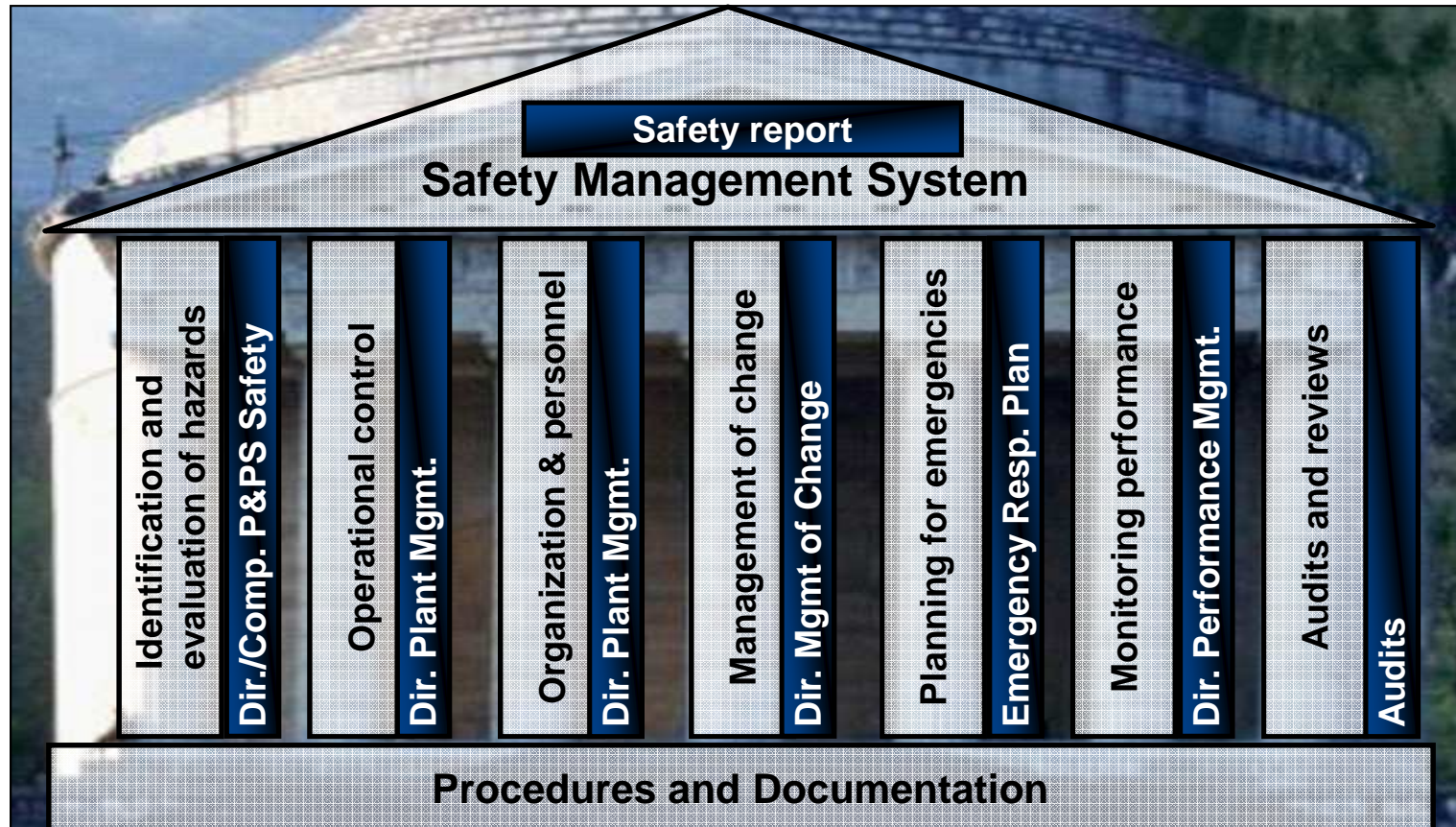
7 Pillars

Procedures and Documentation describing the daily work in the site /plant



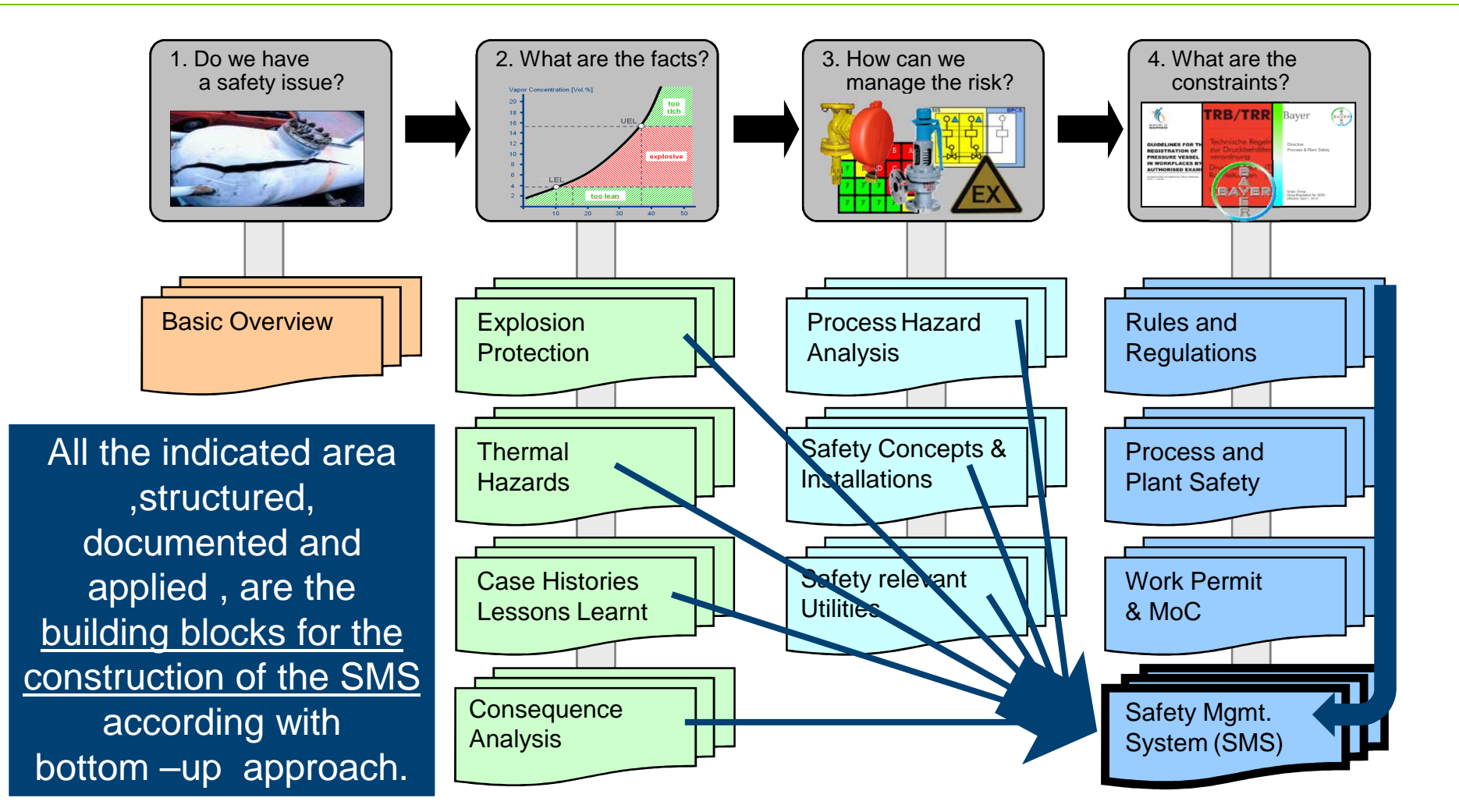
Safety Management System (SMS)

Safety Report pillars/ documents within Bayer Group



Safety Management System (SMS)

The reference work frame



Safety Management System (SMS) Network to share experiences and knowledge



Expert Advice

Vacuum cleaners for use with combustible dusts

Mick Kirby, Global Plant and Process Safety Manager, Global QHSE
Konrad Brehm, Head of Plant and Process Safety - Manufacturing Permits -
Key Expert/Explosion Protection Manager, Global QHSE/QHSE Dornagen

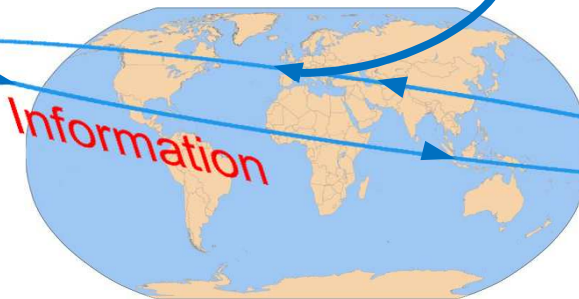
Powders are handled at many BCS sites. Most of these powders are capable of forming combustible dust clouds.

Technical Good Practice Document

Title:	Earthing and Bonding – Avoiding electrostatic spark discharges		
Technical Community:	Process Control Technology	Version:	5.2
Document ID:	TGP_1033	Status:	2013-11-20
Author:	Sushil Shah	Signature:	
Org. Unit:	BCS-PS-TISS-PT, Monheim	Date:	2012-10-25
Team Members:			
Reviewed by:	Org. Unit:	Date:	
Rainer Schulz	BCS-PS-TISS-PT	2013-11-20	
Andreas Seidel	BCS-AG-PS-GHSE	2013-11-20	
Bernad Holzerkamp	BCS-PS-TISS-PT	2013-11-20	
Hans Dieter Schlömer	BCS-PSNA-TECH-KC	2013-11-20	
Konrad Brehm	BCS-PS-GAIO-DDR-QHSE	2013-11-20	
Werner Ekers	BCS-PS-GAIO-DDR	2013-11-20	
Approved by:	Bernd Nowack	Signature:	<i>N.R.</i>
Org. Unit:	BCS-PS-TISS-PT	Date:	03.12.2013

Lesson Learned
Safety Beacon
Expert Advice
Monthly Report

TGP - Technical Good Practice



Lessons Learned – Hot Work (from CSB Report)



E.I. DuPont de Nemours & Co Inc.
Buffalo, New York
Flammable Vapor Explosion
Welding on Tank Containing Vinyl Fluoride (1 Killed, 1 injured)
November 9, 2010

[CSB FULL REPORT LINK](#)



Incident Summary

This case study examines a November 9, 2010, explosion at an E.I. DuPont de Nemours and Co. Inc., Yerkes chemical plant in Buffalo, New York when a contract welder and foreman were repairing the agitator support atop an atmospheric storage tank containing flammable vinyl fluoride. The welder died instantly from blunt force trauma, and the foreman received first-degree burns and minor injuries. The explosion blew most of the top off the tank. The top and agitator assembly hung over the side of the tank supported only by a 2-foot section of the top (cover photo). The explosion caused minor overpressure damage in the tank farm area and the adjacent production building.



Promosso dai sostenitori del CCPS

http://www.ccpsonline.org/CCPS/Publications/Beacon/index.aspx
Messaggi per il personale di Fabbrica

Cos'è la "Sicurezza di Processo?"

Luglio 2008

Non tutti i pericoli sono uguali o possono provocare conseguenze analoghe. I pericoli sulla sicurezza personale o professionale, come scivolamenti, cadute, tagli o incidenti con veicoli, solitamente coinvolgono un lavoratore a livello personale. D'altra parte, i pericoli riguardanti la sicurezza dei processi possono provocare gravi incidenti che comportano il rilascio di materiali potenzialmente pericolosi, incendi ed esplosioni o entrambi. Gli incidenti relativi alla sicurezza di processo possono avere degli effetti catastrofici e possono provocare lesioni multiple e morte, oltre a danni economici, ai beni sociali ed anche danni ambientali. Gli incidenti sulla sicurezza di processo possono danneggiare i lavoratori che operano all'interno di uno stabilimento ma anche le persone che abitano in prossimità dello stesso. Questo è il motivo per il quale la gestione della sicurezza dei processi si focalizza sulla progettazione e sulla costruzione degli impianti, sulla valutazione dei pericoli, sull'investigazione di incidenti, sulla gestione delle modifiche, sulle ispezioni, sulle verifiche, sulla manutenzione delle apparecchiature, su efficaci controlli ed allarmi del processo, sulle procedure operative e di manutenzione, sull'addestramento del personale e sui fattori umani.

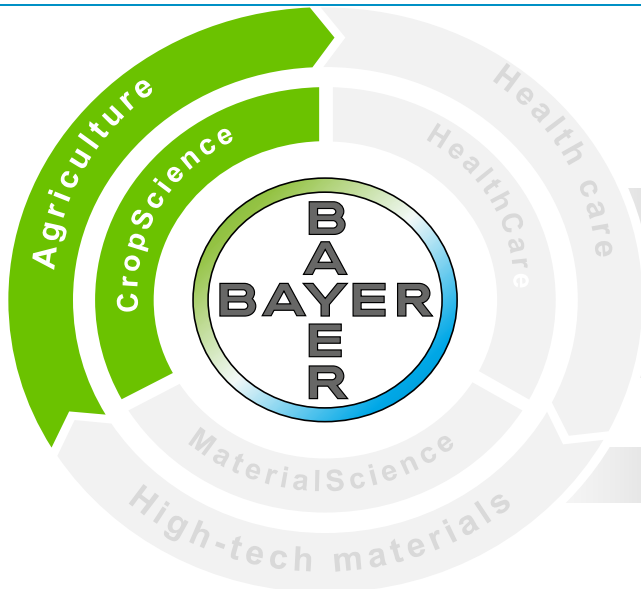


Sicurezza Impiantistica

Sicurezza Personale

Bayer CropScience Subgroup

Industrial Operations World => Country Network



22.400 employees

Sales: € 8,819 billion

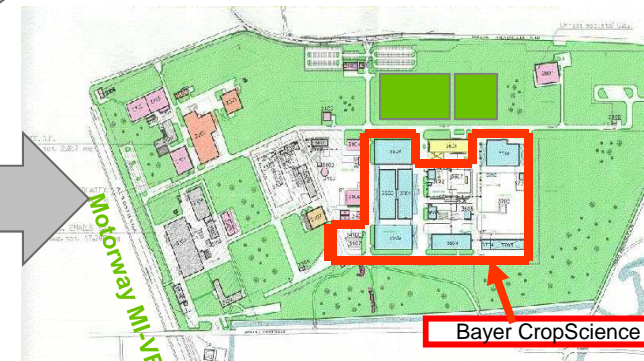
> 120 countries

Industrial sites > 200



EMEA Region

Italy (Industrial Park)



7 Companies _ 5 Plants
4 Plants under Seveso Regulation

Safety Management Systems in Multinational Companies

Mutual Joint Visit Workshop for Seveso Inspectors – 17-19 september 2014 - Mauro Provezza BayerCropScience srl Italy



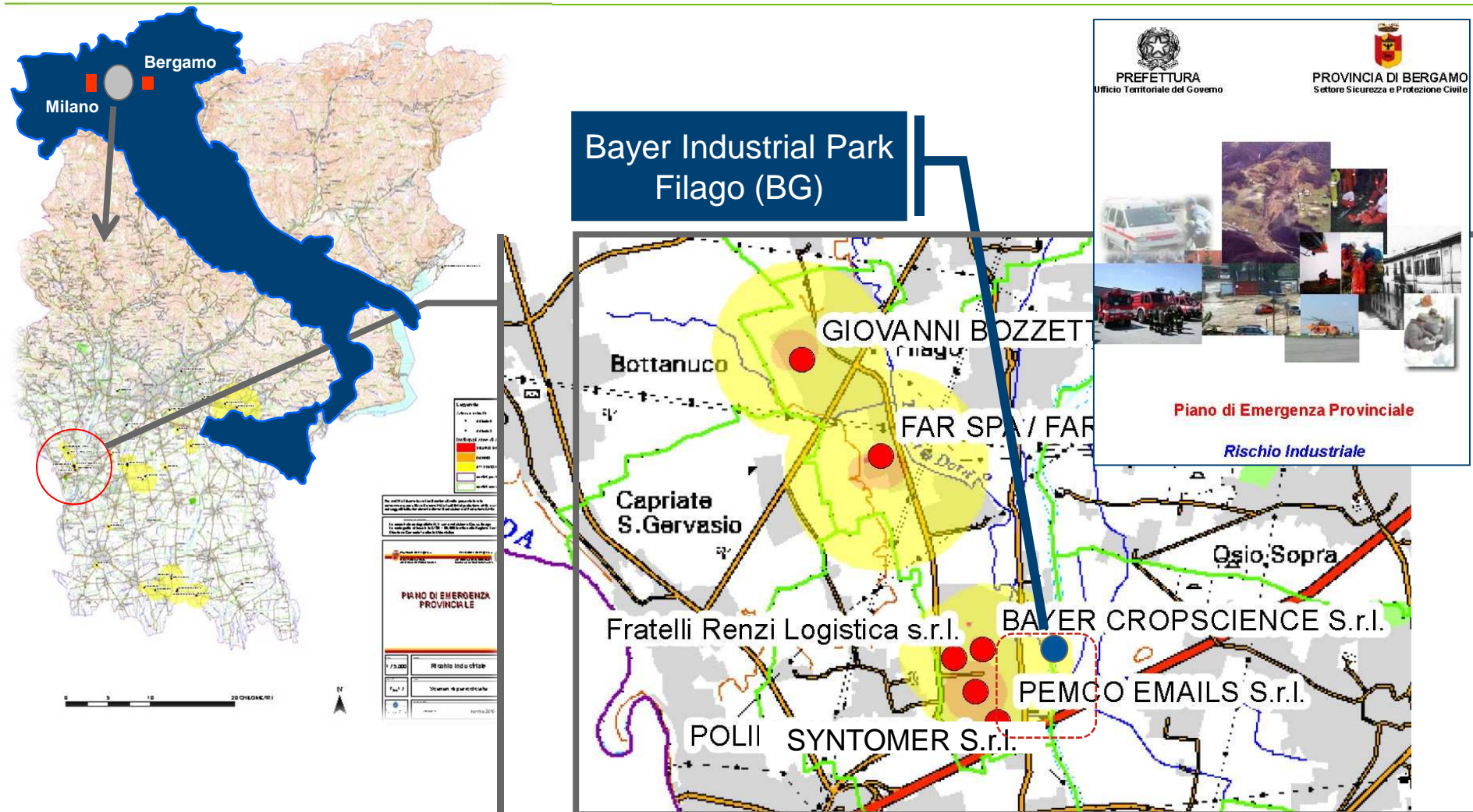
Science For A Better Life

Bayer CropScience Italy Site Filago (BG)

Bayer Subgroup Site were the rules must
fit all together in the SMS

Bayer CropScience Italy

Site Filago Position and External Emergency plan (Italy / Region Lombardia)



Bayer CropScience Italy

Site Filago Activities (Italy / Region Lombardia)



Quality Control & Local Development



Site Established in 1984
(30 years activity)
Italy business and Export business
Agrochemicals and Agrobiologics
Products
for Professional and Garden use.



QHSE
Industrial Systems
(mandatory & voluntary)

EU , National & Regional Laws
Bayer Regulations
ISO , OHSAS , IMO

Supply Demand & WH's & Transport



Ministry of Health Authorization
Products all tox.classifications
Biocides/Environ.protection

Production & Pack.Laboratories



Site Controlling & Industrial P&L



Seveso Directive applied
Notification Art. 6 with the duty of preparing
the Safety Report referred to Art. 8 as a
result of exceeding the threshold limit of
column 2 and 3 of the quantity of dangerous
substances held (Annex I, Part 2 ^).

Engineering & Maintenance



Safety Management System (SMS)

Bayer CropScience Italy

Site Filago Legislative Context



European Union EU

Italian law

European Directive 82/501/CEE **Seveso**



Implemented in Italy with **DPR 17 may 1988, n. 175** the first version

Directive 96/82 CEE

Seveso II



Implemented in Italy with **D.Lgs. 334/99** with related legal rules for application (n. 7)

Directive 2003/105/CE

Seveso II bis



Legislative Decree 21 September 2005, **n. 238**

Directive 2012/18/UE

Seveso III



Entry into force on 13 August of the same year, to be transposed by Member States by June 1, 2015

Regulation (CE) n. 1272/2008

(classification, labeling and packaging)

CLP

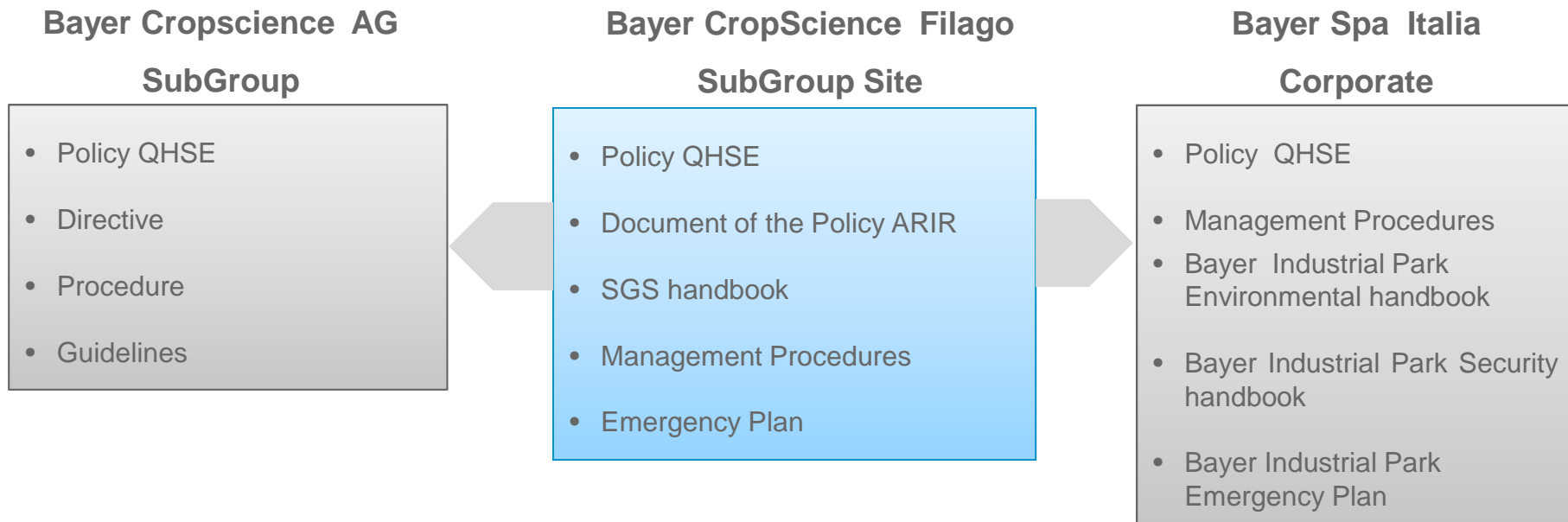


Adapts the previous EU legislation to the GHS (Globally Harmonized System of Classification and Labelling of Chemicals),

Safety Management System (SMS)

Bayer CropScience Filago

Bayer Group Context



Opportunity of improvements considering



Multinational internal context and SMS requirements

to reduce double work as legal documents release
with same contents but different structure.

Safety Management System (SMS)

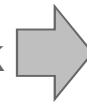
Bayer CroScience Filago

SMS Structure



To achieve the objectives of the prevention Policy and in compliance with the general principles adopted, Bayer CropScience Filago has articulated its own Safety Management System by providing the following documents

- Policy QHSE Bayer CropScience S.r.l.
- Major Accident Prevention Policy
- Safety Management System handbook
- Management Procedures

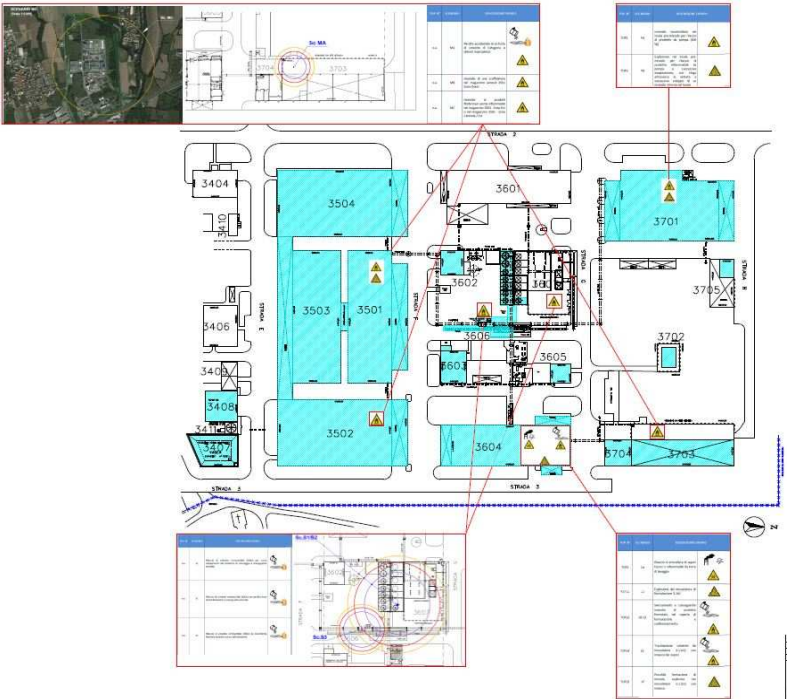


Chapter 1	The Safety Management System
Chapter 2	Organization and Staff
Chapter 3	Identification and evaluation for relevant Hazards
Chapter 4	Operational control
Chapter 5	Management of change
Chapter 6	Emergency planning
Chapter 7	Check and corrective action
Chapter 8	Check and review

Safety Management System (SMS)

Bayer CropScience Filago

TOP EVENTS



SIMBOLI LEGENDA FABBRICATI

Simbolo	Descrizione
[Icona]	BICS AREA
[Icona]	Area di rischio chimico
[Icona]	Area di rischio incendio
[Icona]	Area di rischio esplosione
[Icona]	Area di rischio tossico
[Icona]	Area di rischio biologico
[Icona]	Area di rischio fisico
[Icona]	Area di rischio elettrico
[Icona]	Area di rischio meccanico
[Icona]	Area di rischio idraulico
[Icona]	Area di rischio sismico
[Icona]	Area di rischio ambientale
[Icona]	Area di rischio culturale
[Icona]	Area di rischio storico
[Icona]	Area di rischio paesaggistico
[Icona]	Area di rischio idrogeologico
[Icona]	Area di rischio geologico
[Icona]	Area di rischio geomorfologico
[Icona]	Area di rischio idrologico
[Icona]	Area di rischio meteorologico
[Icona]	Area di rischio climatico
[Icona]	Area di rischio sismico
[Icona]	Area di rischio idrogeologico
[Icona]	Area di rischio geologico
[Icona]	Area di rischio geomorfologico
[Icona]	Area di rischio idrologico
[Icona]	Area di rischio meteorologico
[Icona]	Area di rischio climatico

LEGENDA SCENARI

Scenario	Descrizione	Volume
[Icona]	Scenario 1	10000
[Icona]	Scenario 2	10000
[Icona]	Scenario 3	10000
[Icona]	Scenario 4	10000
[Icona]	Scenario 5	10000
[Icona]	Scenario 6	10000
[Icona]	Scenario 7	10000
[Icona]	Scenario 8	10000
[Icona]	Scenario 9	10000
[Icona]	Scenario 10	10000
[Icona]	Scenario 11	10000
[Icona]	Scenario 12	10000
[Icona]	Scenario 13	10000
[Icona]	Scenario 14	10000
[Icona]	Scenario 15	10000
[Icona]	Scenario 16	10000
[Icona]	Scenario 17	10000
[Icona]	Scenario 18	10000
[Icona]	Scenario 19	10000
[Icona]	Scenario 20	10000

Bayer CropScience	Schede di Intervento Sintetiche Settore Magazzini	PIANO DI EMERGENZA INTERNO PEI
	Scenari Incidentali Secondo il Rapporto di Sicurezza ARR di Bayer CropScience s.r.l. del sito di Filago (BG)	Rev. N° 1 DEL 20/09/2013 Pagina 1 di 9

Attività generali da seguire a seguito di un evento incidentale

ESPOSIZIONE

Explosioni - Incendi

Una volta che il ROE viene informato dell'emergenza e verificata la situazione il ROE attua tutte le azioni di seguito riportate.

ATTENZIONI!

Dare priorità all'evacuazione preventiva e tempestiva dell'eventuale personale presente nella zona dell'evento e della messa in sicurezza dell'area.

- Il ROE convoca la SDE nel punto che ritiene opportuno con tutti i DPI previsti e in dotazione negli appositi armadi (il numero minimo di unità per intervenire in sicurezza è di almeno 4 componenti delle SDE).
- In caso di necessità il ROE fa intervenire la SPI di BCS/F A/o la SPI del Polo Bayer di Filago.
- Il ROE dovrà prevedere che almeno due persone delle SDE si dotino di respiratori autonomi (autorespiratori) prelevandoli dalla postazione ritenuta più idonea e sicura in base all'emergenza in atto.
- Prevedere il blocco del traffico sia dei mezzi che delle persone intorno alla zona oggetto dell'incendio.
- Prevedere l'evacuazione dei restanti edifici / aree del sito.
- Attivare quanto previsto dal piano di emergenza ovvero tramite il 7777 (Portineria) per l'eventuale intervento dei Vigili del Fuoco e le comunicazioni verso le autorità.
- Verificare la direzione del vento e disporre in condizioni favorevoli, soprattutto rispetto alla direzione dell'incendio (fiamme) e/o dei fumi.
- Utilizzare i mezzi messi a disposizione.

Per dettagli sull'uso (Istruzioni Operative) si veda la parte del PEI - 3 Istruzioni Operative.
Per ulteriori dettagli sulle modalità di intervento riguardo a: incendi, esplosioni, emissioni tossiche e/o sversamenti, si rimanda alla parte Prima - 5 Interventi Emergenza ROE-SDE.

Training

Bayer CropScience	Elenco Scenari Magazzini Edifici 3703 – 3501 – 3502	PIANO DI EMERGENZA INTERNO PEI
		Rev. N° 1 DEL 20/09/2013 Pagina 2 di 9

Seq. n°	Scenario	DESCRIZIONE EVENTO	POTENZIALI CONSEGUENZE	Volume di inquinamento	Volume di infortunati
1.A	MA	Partita accidentale di un fusto di solvente di categoria A (classificazione)	Danni alla salute del settore 1 del settore 3703. Possibilità di coinvolgimento di altri fusti entro una distanza di 10 m dalla fiamma e di conseguente propagazione dell'incendio con possibile scoppio di fusti metallici.	4,93 x 10 ⁴	1
1.B	MB	Incendio di una confezione nel magazzino settore 3501 Zona C/est	I danni dovrebbero riguardare esclusivamente la stessa magazzino, senza interessare le strutture limitrofe.	6,64 x 10 ⁴	1
1.C	MC	Incendio di prodotto fitofarmaci nel magazzino settore 3501 e nel magazzino 3503 - Zona C/est (est)	I danni riguardano esclusivamente il compartimento, senza interessare le aree limitrofe. Diffusione di fumi in atmosfera con rischio di scoppio in caso di contenimento overflow e limiti di soglia da basso, sono il responsabile del livello di inquinamento per l'aria che superano i limiti di soglia di protezione che include tutte le Parti Produttive Bayer di interesse durante tutto l'arco del ciclo di lavoro, ma solo con venti molto inferiori (2-3 m/s), con effetto maggiorato con conseguente inquinamento per le vie d'acqua (DWA).	6,64 x 10 ⁴	1

- Fire / explosion formulation liquid department 3604
- Fire / explosion premix building
- Fire / explosion storage drums area
- Fire / explosion storage tanks area
- **Fire warehouse building 3502**
with potential effects outside the Bayer Industrial Park of Filago

Safety Management System (SMS)

Bayer CropScience Filago

Training frame



- Specific Training according to **Seveso Law** (every 3 months)
- Specific training according to health and safety at work legislation **DL81/2008** (i.e. Region & State Agreement)
- **Ministry of Health** light GMP training requirement for Operational Processes.
- Specific / technical training from **Bayer Corporate** .
(i.e. TOPPS Top Performance Process and Plant Safety)
- Specific training from **Bayer CropScience Subgroup**
(Expert Advice ,Monthly Report , Lesson Learned, Safety beacon,
TGP - Technical Good Practice Document. Six Sigma , FELS , BBS , ...)
- Specific training from **Bayer CropScience site Filago**
(i.e. Procedure new release/update , Team work organization , Leadership Safety , Transport Rules , Contamination prevention , IEP , Legal obligations ,.....)



Safety Management System (SMS)

Bayer CropScience Filago

Training example from TOPPS

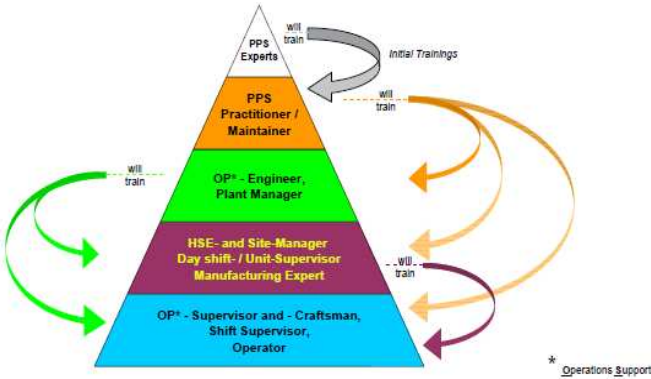
(**T**op **P**erformances in Process and **P**lant **S**afety)

1. Clear commitment to PPS by top management
2. Enhance monitoring and control of PPS performance
3. Improve communication concepts to increase awareness of PPS topics
4. Improve efficiency and impact of regulations/procedures/processes
5. Establish systematic PPS training strategy
6. Increase availability and accessibility of PPS expertise
7. Safeguard organizational structures to maintain the desired level of PPS
8. Refine Management of Change processes

The Frame of Project Full in place



Training Cascade / Pyramid Scheme



The TOPPS training is split into 9 Modules:

1. Basic Overview
2. Rules and Regulations
3. Process Hazard Analysis
4. Explosion Protection
5. Thermal Hazards
6. Safety Installations
7. Safety Relevant Utilities
8. Consequence Analysis
9. Training Techniques (applicable only for level 5 and trainers)

Training to reach expectations . Full in place

Safety Management System (SMS)

Bayer CropScience Filago

Inspections /Audit from different actors on the same site



Internal HSEQ Audit

Bayer Corporate
Process & Plant
Safety Audit

Seveso Law
Inspection

Safety&Health
Audit (DL81/2008)

Ministry Health
Audit & Inspection

**20 day/year devoted to Audit /Inspection
3,5 resources /year to manage the
workflow .**

ADR / IMDG
Audit

Legal compliance
Audit (DL 213/2001)

20 % of resources is required to maintain
different documentations with similar contents
but low level of synergy .

ISO & OHAS
Audit

Assurance Risk
Audit

EMAS Audit

Inspections without preliminary notice made by official control organizations operating on the territory (ASL, ARPA, NAS ,)

“Seveso” Directive 30 year after .

Opportunity for improvement in the light of experience



Main areas for improvement considering

- SMS multinationals approach
- Seveso III and Regulation CE 2012/18/EU
 - Risk analysis methodologies and Company approach
 - Safety Report delivery
 - Inquiries and Controls
 - Information / Formation / Training requirements
 - Emergency planning
 - Land –use planning

In the next slide one example as input for Breakout sessions

“Seveso” Directive 30 year after .

Risk analysis methodologies and Company approach



Example

- In most cases, industrial corporate has developed and formalized its own **qualitative ranking for the Top Event expected probability and related accident effects magnitude**, without any further need for probabilistic and consequences analysis.
- This normally represents the major effort and time consuming task in risk analysis (PHA/HAZOP) , but often this **isn't appreciated in Safety Report inspection where the local law** asks for a formal probabilistic and consequences quantitative evaluation.

“Seveso” Directive 30 year after

Important results



The experience in risk analysis and SEVESO directive implementation has provided a lot of benefits in EU safety and risk prevention culture

Risk analysis and Seveso implementation has led to

- Strong improvement in the safety culture.
- Substantial investments dedicated to the improvement of active and passive safety.

The growth has involved all interested parties:

- Risk analysts;
- Companies falling within the scope of the Directive;
- Engineering companies;
- Authorities in charge of the management of the regulatory and supervisory bodies.

The results of this growth are also visible in

- Increased involvement of local authorities
- Greater collaboration with the authorities of civil protection and emerg.planning,

“Seveso Incident 10 July 1976 “ The Mayor of Mayors



Francesco Rocca



He is no longer (2nd August 2014) with his people of Seveso where he was Mayor of twice from 1970 to 1980 and has been able to cope in an exceptional way the well-known event ICMESA 10 July 1976.

The population of Seveso remembers him for his ability to handle those difficult moments in a balanced and pragmatic way .

He has been called "The Mayor of Mayors"



Science For A Better Life

Thank for your kind the attention!

Bayer Group

Bayer CropScience subgroup Industrial Perspective
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Safety Management Systems in Multinational Companies

Mutual Joint Visit Workshop for Seveso Inspectors

17-19 September 2014, Arona, Italy



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