

Romania -Ministry of Environment, Water and Forests  
National Environmental Guard  
Cluj County Commissariat

## **Major elements of the SEVESO Directive: emergency plans**

Costa STANISAV

Email: [cstanisav@yahoo.com](mailto:cstanisav@yahoo.com)

TAIEX ECRAN 60197-Albania/Tirana 8-10 September- 2015

2

## Content

- Examples of major accidents in the last year
- Internal emergency plan (IEP) – legislative requirements, scope and objectives
- Internal emergency plan – chapter pattern in Romania
- Aspects from an approved IEP (hazards risk calculation, causes. consequences, prevention measures etc),

## Tianjin accident - August 12<sup>th</sup> 2005

- **Cyanide in waters near China blast site 277 times acceptable level: government report**
- The government has confirmed there were about 700 tones of the deadly chemical sodium cyanide in the warehouse that blew up late last Wednesday. This is 70 times the legal limit. Sodium cyanide leakage has been reported in the sewer.
- Tianjin, the world's 10th-busiest port, will relocate chemical plants from the Tianjin Binhai New Area where the blasts occurred to the Nangang Industrial Zone, 25 km (15.5 miles) away, according to the official China Daily, citing Tianjin Mayor Huang Xingguo.
- There were 1,300 tones of potentially explosive oxidizing chemicals, including ammonium nitrate and potassium nitrate, 500 tones of flammables, including sodium and magnesium, and 700 tones of deadly poisons, mainly sodium cyanide.
- explosions killed 114 people.

TAIEX ECRAN 60197-Albania/Tirana 8-10 September- 2015

## Tianjin



5



6

August 23<sup>rd</sup> 2015 warehouse in Zibo city exploded, triggering a fire.



7

**February 12, 2015 - SPAIN** - Spanish authorities have ordered the residents of two northeastern towns to stay indoors after a chemical explosion at a warehouse spread a large, orange toxic cloud over the area



8

## DATABASE ON MAJOR ACCIDENTS (1984 - 2007)



- 603 accidents and near misses reported
- ~ 66% due to management failure
- ~10% caused environmental damage
- ~66 % caused injuries or fatalities

Source: ECENA network

## DIRECTIVE 2012/18/EU (Seveso III)

- To prepare for emergencies, in the case of establishments where dangerous substances are present in significant quantities, it is necessary to establish **internal and external emergency plans** and to establish procedures to ensure that those plans are tested and revised as necessary and implemented in the event of a major accident or the likelihood thereof.
- The staff of an establishment should be consulted on the internal emergency plan and the public concerned should have the opportunity to give its opinion on the external emergency plan.
- Sub-contracting may have an impact on the safety of an establishment.

### Seveso III Art 12 Emergency plans

Member States shall ensure that, for all upper-tier establishments:

- (a) the operator draws up an internal emergency plan for the measures to be taken inside the establishment;
- (b) the operator supplies the necessary information to the competent authority, to enable the latter to draw up external emergency plans;
- (c) the authorities designated for that purpose by the Member State draw up an external emergency plan for the measures to be taken outside the establishment within two years following receipt of the necessary information from the operator pursuant to point (b).

## Seveso III Article 12 IEP- Scope and objectives

- Containing and controlling incidents so as to minimize the effects, and to limit damage to human health, the environment and property;
- Implementing the necessary measures to protect human health and the environment from the effects of major accidents;
- Communicating the necessary information to the public and to the services or competent authorities concerned in the area;
- Providing for the restoration and clean-up of the environment following a major accident.
- Emergency plans shall contain the information set out in Annex IV.

## Internal emergency plans

- Performed by the Seveso upper tier operator (usually with the help coming from a consult company)
- Reviewed/tested, revised/updated by Operator (min.every 3y)

## ANNEX IV

### Data and information to be included in the IEP, referred to in Article 12

- (a) Names or positions of persons authorized to set emergency procedures in motion and the person in charge of and coordinating the on-site mitigatory action;
- (b) Name or position of the person with responsibility for liaising with the authority responsible for the external emergency plan;
- (c) For foreseeable conditions or events which could be significant in bringing about a major accident, a description of the action which should be taken to control the conditions or events and to limit their consequences, including a description of the safety equipment and the resources available;
- (d) Arrangements for limiting the risks to persons on site including how warnings are to be given and the actions persons are expected to take on receipt of a warning;
- (e) Arrangements for providing early warning of the incident to the authority responsible for setting the external emergency plan in motion, the type of information which should be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available;
- (f) where necessary, arrangements for training staff in the duties they will be expected to perform and, as appropriate, coordinating this with off-site emergency services
- (g) Arrangements for providing assistance with off-site mitigatory action.

Frame structure of the internal emergency plan  
according to the Romanian OMAI-no-647/2005- approving the Methodological  
Norms on emergency plans in case of accidents involving hazardous substances

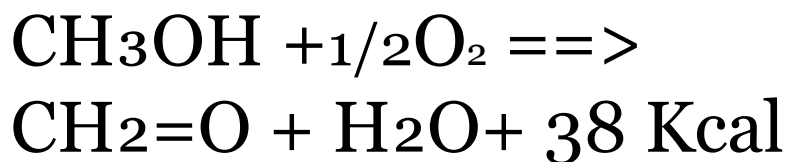
1. Plan distribution list
2. Update and review evidence
3. Contents
4. General issues
5. Information about the site
6. Identification and classification of events
7. Emergencies classification
8. Notification, informing and alarming
9. The organization and management of intervention actions
10. Communications
11. Logistics
12. Environmental monitoring
13. Communication with the media and public information
14. Plan verification/tested

## Information to be supplied to competent authorities, in case a major accident occurs

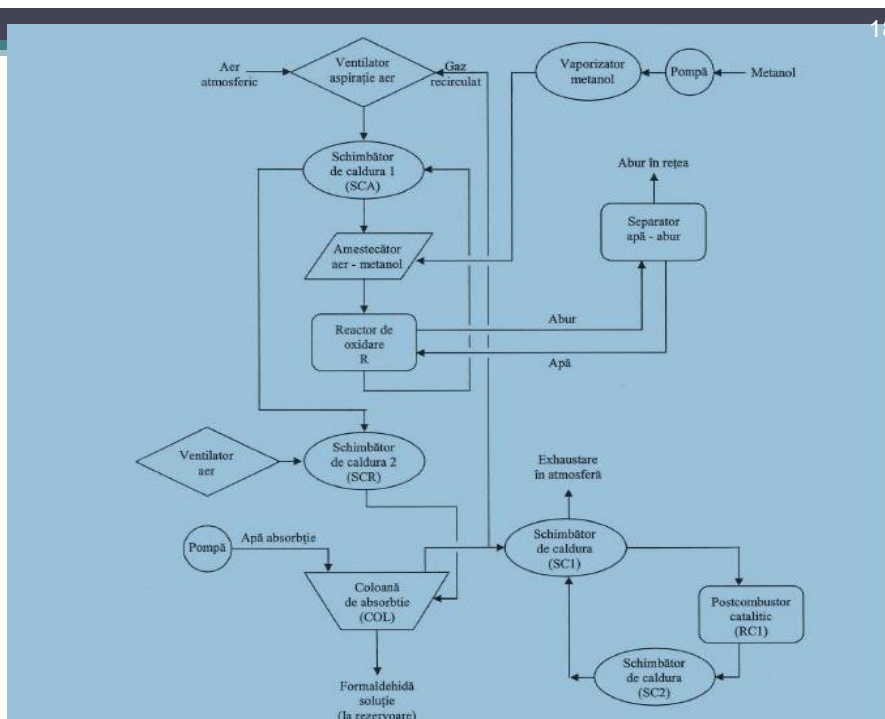
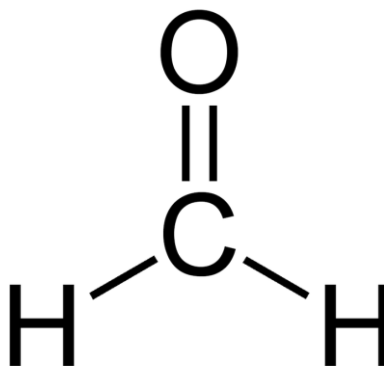
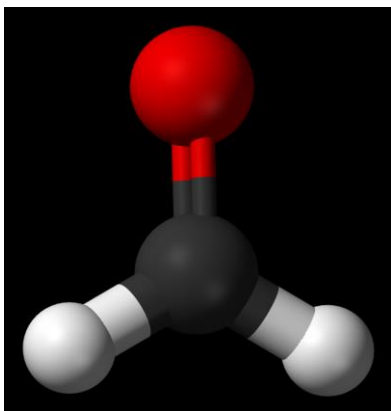
- Circumstances of the accident
- Dangerous substances involved
- Data available for assessing the effects of the accident
- Emergency actions undertaken by company

Seveso installation producing formalin for furniture industry

Methanol is oxidized (O<sub>2</sub> from air) at formalin in the presence of a catalyst (eg.copper, silver):



## Formalin



Ref.	Hazard		Potential causes	Probability	Gravity	Risk	Possible consequences (immediate and final)	Prevention measures
<b>A1</b>	<b>Methanol leakages</b>	A1.1	Corrosion fissure	1	3	<b>3</b>	Employees health problems due to toxic vapors	Design and construction according to standards
		A1.2	Bad maintenance	2	3	<b>6</b>		Utilization of stainless steel
		A1.3	Material having non conformities or bad design	1	3	<b>3</b>	Employees health problems caused by drops sprinkling	Having an operational system of inspection and maintenance Concrete platform
		A1.4	Failure of flanges, fitting etc.	3	2	<b>6</b>	Methanol leakage into the sewerage Fire/explosion	Using of process computers that can automatically stop the methanol input Controlling the system from outside (no inside workers), using computers Advertisement panels Using of adequate protection personnel equipment

Aspects from an approved IEP (hazards risk calculation, causes, consequences, prevention measures)

Ref	Hazard		Potential causes	Probability	Gravity	Risk	Possible consequences (immediate and final)	Prevention measures
<b>A3</b>	<b>Explosion at oxidation reactors</b>	A3.1	Non conformity regarding methanol dosage (leading to near by or explosion concentration of the reactants)	3	3	<b>9</b>	Employees health problems due to toxic vapors	Using of process computers that control the mixing parameters of reactants Design and construction according to standards Utilization of stainless steel
		A3.2	Reactor fissure followed by cooling substances enter into reactor	1	3	<b>3</b>	Employees health problems caused by hitting due to material scraps blown by explosion Damages of installation parts Fire/explosion	Having an operational system of inspection and maintenance Controlling the system from outside (no inside workers), using computers <b>Using of "breaking disks"</b> Advertisement panels for danger

## Breaking disc

- Breaking disc is a metal preformed differential pressure.
- Its purpose is protection equipment, boilers, tanks and other systems, the background of a pressure or a vacuum.
- Breaking disc has a very short reaction time (milliseconds), releasing excess pressure occurs by opening (breaking) display



Aspects that must be taken into account, during the process of updating an IEP

1. What technical changes are relevant to internal emergency plan?
2. What organizational changes are relevant to internal emergency plan?
3. Are there changes of addresses for alarm, permanent service or fast intervention services?
4. Are there are new technical information relevant to internal emergency planning (media, intervention techniques, means of intervention)?
5. Are available new information as a result of major accidents, which can be used during the internal emergency plan?

## References

- Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC
- Internal emergency plan- Kronospan Sebes
- Twinning Project guides: RO/2002/IB/EN/02 /Implementation of the VOC's, LCP and Seveso II Directives
- <http://uk.reuters.com/article/2015/08/20/> and Wikipedia
- ECENA network materials
- Romanian OMAI-no-647/2005- approving the Methodological Norms on emergency plans in case of accidents involving hazardous substances

TAIEX ECRAN 60197-Albania/Tirana 8-10 September-2015

Thank you for your attention



Questions?

TAIEX ECRAN 60197-Albania/Tirana 8-10 September-2015