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What is eMARS?

Workshop on Accident Analysis and Risk Assessment

20-22 November 2013, Ispra, Italy

Zsuzsanna Gyenes, PhD - JRC IPSC STA Unit - Major Accident Hazards Bureau

Who reports to the eMARS database?

EU Member States must report all “major accidents” in fixed facilities as defined by criteria listed in Annex VI of the Seveso II Directive

Non-EU OECD Member States report past chemical accidents on a voluntary basis

- These accidents can be at fixed facilities or in transportation
- 18 accidents from the US
- 8 accident reports from Canada

UN ECE - 8 accidents with transboundary/cross border effects

Seveso Annex VI Criteria for Notification of an Accident

1. Substances involved - a quantity of at least 5 % of the UT threshold
2. Injury to persons or damage to real estate.
 - Various thresholds provided including 1 death, 6 persons injured on-site/ hospitalized 24 hrs, 1 person off-site hospitalized for at least 24 hours, disruption of public life, e.g., evacuation or confinement of persons (500 hours), utility disruptions (1000 hours)
3. Damage to the environment - various criteria
4. Damage to property (onsite – 2 mil Euro, offsite – 0.5 mil Euro)
5. Cross-border damage



European Commission

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JOINT RESEARCH CENTRE
EMARS - Major Accident Reporting System

European Commission > JRC > Emars

Welcome to the Major Accident Reporting System

About eMARS

The Major Accident Reporting System (MARS and later renamed eMARS) was first established by the EU's Seveso Directive 82/501/EEC in 1982 and has remained in place with subsequent revisions to the [Seveso Directive](#) in effect today. The purpose of the eMARS is to facilitate the exchange of lessons learned from accidents and near misses involving dangerous substances in order to improve chemical accident prevention and mitigation of potential consequences.


MARS contains reports of chemical accidents and near misses provided to the Major Accident and Hazards Bureau (MAHB) of the European Commission's Joint Research Centre from EU, OECD and UNECE countries (under the [TEIA Convention](#)). Reporting an event into eMARS is compulsory for EU Member States when a Seveso establishment is involved and the event meets the criteria of a "major accident" as defined by Annex VI of the Seveso III Directive (2012/18/EU). For non-EU OECD and UNECE countries reporting accidents to the eMARS database is voluntary. The information of the reported event is entered into eMARS directly by the official reporting authority of the country in which the accident occurred.

NEW! eMARS "Dashboard" of Selected eMARS Statistics - Just click on the image of the pie chart above to enter.

The Dashboard introduces the ability for users to view or reproduce results from four standardized queries on eMARS database taken directly from reports online in real time, using existing classifications used by the reporting form and/or defined by the legislation. As eMARS is further developed, it is expected that more such interactive query options will be available. Please note the following conditions and limitations regarding eMARS queries:

- The structure of the database as well as the high variability of information associated with any one event limits fields on objects that can be queried in this manner.
- For some charts in the dashboard one can choose to eliminate certain categories from the chart by clicking on the name of the category (e.g., "release" in the top left chart). One can also choose a period of years (up to 10 years) other than the default. The new time period will be automatically applied to all charts in the dashboard.
- Prior to the Seveso II Directive, the classifications "upper tier" and "lower tier" did not exist. After Seveso II was established, some sites could not be definitively classified until the early 2000s.
- "Near misses" are events that do not qualify as major accidents under Seveso. Although the Directive recommends reporting near misses, reporting them is voluntary. "Other events" are usually accidents in transport or accidents reported by non-EU OECD countries.
- Statistics on event locations are not available. This is standard practice for databases of this type where anonymity helps to encourage sharing information.
- The eMARS site also offers the possibility to download an Excel file (click "get all accidents" in the search form) of a limited number of data fields on all events in the database or a filtered subset. For more specific queries (e.g., on substances, processes) users may have to apply filters, data mining techniques and read through free text descriptions of events to extract information.
- It should be noted that there is normally a substantial delay from the time when an accident occurs to when a report is published in eMARS. Typical lagtime can be anywhere from 12 to 30 months, but occasionally shorter or longer. These lagtimes are most commonly due to delays in releasing the final investigation report pending resolution of legal and technical issues, and to a lesser extent, the time necessary to translate the report into English. This means that users of the dashboard should avoid using statistics of the most recent 3 years (without this caveat because the numbers are likely to change significantly in an annual iteration).

<https://emars.jrc.ec.europa.eu>



European Commission

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EMARS - Major Accident Reporting System

Login

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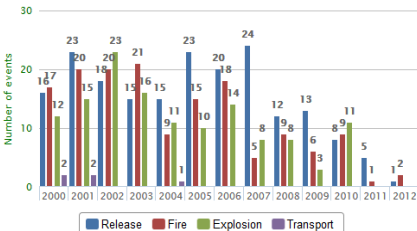
eMARS Dashboard

Selected eMARS Statistics

Select a time period [1]: from to

Number of Events per Type of Event

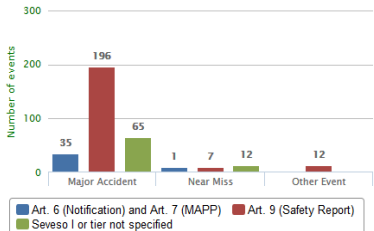
(2000 to 2012)



Major Accident Hazards Bureau

Number of Events per Seveso Tier Status

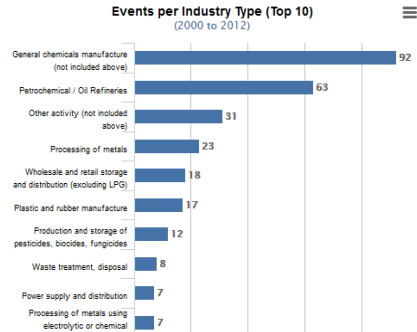
(2000 to 2012)



Major Accident Hazards Bureau

Events per Industry Type (Top 10)

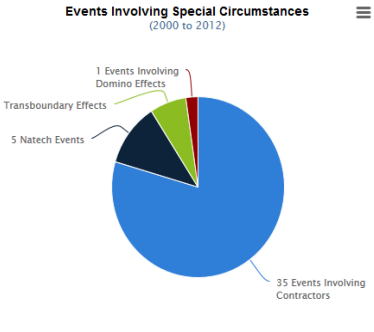
(2000 to 2012)



Major Accident Hazards Bureau

Events Involving Special Circumstances

(2000 to 2012)



Major Accident Hazards Bureau

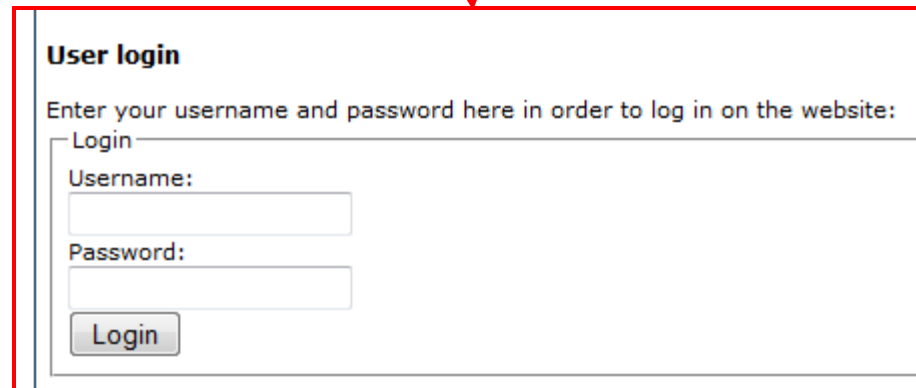
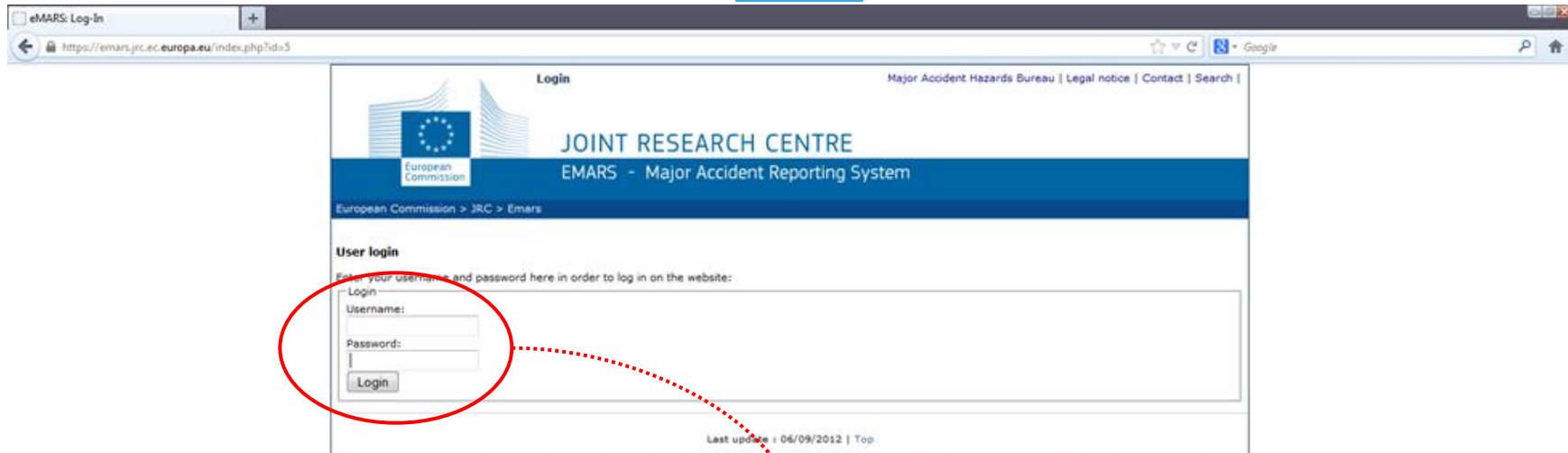
Joint Research Centre

Login surface



European
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Welcome zsuzsanna_g [Sign out] Major Accident Hazards Bureau | Legal notice | Contact | Search |

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JOINT RESEARCH CENTRE
EMARS - Major Accident Reporting System

European Commission > JRC > Emars Accident Administration Admin tools

Welcome to the Major Accident Reporting System

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Report new accident



Welcome _natauth [Sign out] Major Accident Hazards Bureau | Legal notice | Contact | Search |

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EMARS - Major Accident Reporting System

European Commission > JRC > Emars Accident Administration

Accident administration

Search national authority accidents on: (Select one or more items.)

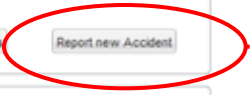
Accident start date
between and

Status: Accident Code: Year:

	AccidentCode	Status	Start Date	Plant Name
	'1997/001-[01]	ONLINE	08/07/1997	
	'1998/001-[01]	ONLINE	26/06/1998	
	'1998/002-[01]	ONLINE	29/06/1998	
	'2002/001-[01]	ONLINE	26/06/2001	
	'2003/001-[01]	ONLINE	13/08/2003	
	'2004/001-[01]	ONLINE	09/08/2004	
	'2006/001-[01]	ONLINE	28/03/2006	
	'2006/002-[01]	ONLINE	13/07/2006	
	'2006/003-[01]	ONLINE	21/12/2006	
	'2008/001-[01]	ONLINE	11/03/2008	
	'2012/002-[01]	NEW CREATED	20/03/2012	Test Airport

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Last update : 06/09/2012 | Top



Report Accident form

Submit

Status:

Close

Accident Profile

Help

Date/Time of Major Occurrence

Start date:

dd/mm/yyyy

Start time (hh:mm):

Finish date:

dd/mm/yyyy

Finish time (hh:mm)

Accident Code:

Accident Title:

Reporting Authority

Accident Type:

Select a type...

Reported under:

Select a legislation...

Seveso II status:

Select a status...

Industrial Activity:

Select an industry type...

Plant Information

Name:

Address:

Country: Austria

Authority Contact

Name:

Phone:

Fax:

Email:

Reason for Reporting:

- | <input type="checkbox"/> | Reasons |
|--------------------------|---|
| <input type="checkbox"/> | Substances involved: greater than 5% of quantity in Column 3 of Annex I |
| <input type="checkbox"/> | Injury to persons: >= 1 fatalities, >= 6 hospitalizing injuries etc. |
| <input type="checkbox"/> | Immediate damage to the environment (according to Annex VI) |
| <input type="checkbox"/> | Damage to property: on-site >2M €, off-site > 0.5M € |
| <input type="checkbox"/> | Cross-border damage: transboundary accidents |
| <input type="checkbox"/> | Interesting for lessons learned. |

Affected Neighbour Countries

Neighbour Country 1:

Select a country...

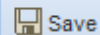
Neighbour Country 2:

Select a country...

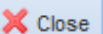
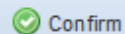
Neighbour Country 3:

Select a country...

Report Accident form



Status: TO BE CONFIRMED



- Accident Profile
- Accident Description**
- Site and Installation
- Substances Involved
- Causes
- Consequences
- Emergency Response
- Lessons Learned
- Attachment Set



Accident Description:

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Accidents Involving

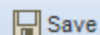
- Domino effects
- Natech events
- Transboundary effects
- Contractors

- Release**
- Fire
- Explosion
- Transport
- Other/Unknown

Release

- | <input type="checkbox"/> Major Occurrences |
|---|
| <input type="checkbox"/> gas/vapour/mist/etc release to air |
| <input type="checkbox"/> fluid release to ground |
| <input type="checkbox"/> fluid release to water |
| <input type="checkbox"/> solid release to air |
| <input type="checkbox"/> solid release to ground |
| <input type="checkbox"/> solid release to water |
| <input type="checkbox"/> not known / not applicable |

- | <input type="checkbox"/> Initiating Events |
|---|
| <input type="checkbox"/> gas/vapour/mist/etc release to air |
| <input type="checkbox"/> fluid release to ground |
| <input type="checkbox"/> fluid release to water |
| <input type="checkbox"/> solid release to air |
| <input type="checkbox"/> solid release to ground |
| <input type="checkbox"/> solid release to water |
| <input type="checkbox"/> not known / not applicable |



Save

Status: TO BE CONFIRMED



Confirm



Close



Accident Profile

Accident Description

Site and Installation

Substances Involved

Causes

Consequences

Emergency Response

Lessons Learned

Attachment Sec



Help

Site Description:

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Installation Description:

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Storage



Process



Transfer



Transport



Other/Unknown



Storage

<input type="checkbox"/> Major Occurences	Equipment Type
<input type="checkbox"/> process-associated (stockholding, etc. on-site of manufacture)	
<input type="checkbox"/> distribution-associated (not on-site of manufacture)	
<input type="checkbox"/> other	
<input type="checkbox"/> not known / not applicable	

 Initiating Events**Equipment Type**

<input type="checkbox"/> process-associated (stockholding, etc. on-site of manufacture)	
<input type="checkbox"/> distribution-associated (not on-site of manufacture)	
<input type="checkbox"/> other	
<input type="checkbox"/> not known / not applicable	



Save

Status: TO BE CONFIRMED



Confirm



Close



Accident Profile

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Substances Involved Description:

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TESTTEST**TEST****TEST****TEST****TEST****TEST****TEST****TEST****Substances Involved****Substance Classification** ▲

00. NAMED SUBSTANCE



01. VERY TOXIC



02. TOXIC



03. OXIDIZING



04. EXPLOSIVE - note 2(a)



05. EXPLOSIVE - note 2(b)



Add substance



Remove selected

**Substance Involved****CAS Number****Directly Involved
(tonnes)****Potential Quantity
(tonnes)**

New substance 2

1515-158494-222

14.00000

67.00000



New substance 1

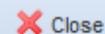
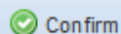
1515-158494-149

22.00000

48.00000



Status: TO BE CONFIRMED



← Accident Profile Accident Description Site and Installation Substances Involved **Causes** Consequences Emergency Response Lessons Learned Attachment Section →



Causes Description:

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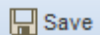
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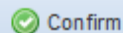
 Plant/Equipment Human Organisational External Other/Unknown Plant/Equipment

<input type="checkbox"/>	<i>Causative Factor</i>	<i>Type</i>
<input checked="" type="checkbox"/>	vessel/container/containment-equipment failure	
<input checked="" type="checkbox"/>	component/machinery failure/malfunction	
<input checked="" type="checkbox"/>	loss of process control	
<input checked="" type="checkbox"/>	corrosion/fatigue	
<input checked="" type="checkbox"/>	instrument/control/monitoring-device failure	
<input checked="" type="checkbox"/>	runaway reaction	
<input checked="" type="checkbox"/>	unexpected reaction/phase-transition	
<input checked="" type="checkbox"/>	blockage	
<input checked="" type="checkbox"/>	electrostatic accumulation	
<input checked="" type="checkbox"/>	other	
<input checked="" type="checkbox"/>	not known / not applicable	

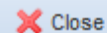


Save

Status: TO BE CONFIRMED



Confirm



Close



Accident Profile

Accident Description

Site and Installation

Substances Involved

Causes

Consequences

Emergency Response

Lessons Learned

Attachment Secti



Help

Consequences Description:

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Human



Environmental



Cost



Disruption



Human

<input type="checkbox"/> Onsite	Quantity	Quantity/Effect
<input type="checkbox"/> At risk	0	
<input type="checkbox"/> Fatalities	0	
<input type="checkbox"/> Injuries	0	
<input type="checkbox"/> Other	0	

<input type="checkbox"/> Offsite	Quantity	Quantity/Effect
<input type="checkbox"/> At risk	0	
<input type="checkbox"/> Fatalities	0	
<input type="checkbox"/> Injuries	0	
<input type="checkbox"/> Other	0	

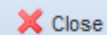


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Status: TO BE CONFIRMED



Confirm



Close

← Accident Profile Accident Description Site and Installation Substances Involved Causes Consequences **Emergency Response** Lessons Learned Attachment Sec →



Help

Emergency Response Description:

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Emergency Response

<input type="checkbox"/>	Emergency Response	Quantity	Quantity/Effect
<input checked="" type="checkbox"/>	On-site systems	5	
<input checked="" type="checkbox"/>	Off-site external services	2	test
<input checked="" type="checkbox"/>	Sheltering	0	test
<input checked="" type="checkbox"/>	Evacuation	1	test
<input checked="" type="checkbox"/>	Other	4	test

Remedial Measure

<input type="checkbox"/>	Remedial Measure	Quantity	Quantity/Effect
<input checked="" type="checkbox"/>	Decontamination	2	test
<input checked="" type="checkbox"/>	Restoration	5	test
<input checked="" type="checkbox"/>	Other	2	test



Save

Status: TO BE CONFIRMED



Confirm



Close



Accident Profile

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Help

Theme of the Lessons Learned

- Theme Lessons Learned**
- Causes - Plant/Equipment
- Causes - Human
- Causes - Organisational
- Causes - External
- Emergency Response
- Other

Lessons Learned Description:

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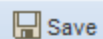
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Report Accident form



Save

Status: TO BE CONFIRMED



Confirm



Close

← Incident Profile

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Attachment Section →






Help

File Attachments

Add file Remove Move to confidential View Save description(s)

<input type="checkbox"/>	File name	Size	Description
<input type="checkbox"/>	test.udl	350 Byte	description confidential

Report Accident form

 Save **Status: TO BE CONFIRMED**  Confirm  Close






← Description Site and Installation Substances Involved Causes Consequences Emergency Responce Lessons Learned Attachment Section **Confidential Section** →

 Help

Confidential Description:

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File Attachments

 Add file  Remove  Move to attachment  View  Save description(s)

<input type="checkbox"/>	<i>File name</i>	<i>Size</i>	<i>Description</i>

THANK YOU FOR YOUR ATTENTION

IPSC - INSTITUTE FOR THE PROTECTION AND SECURITY OF THE CITIZEN
ISPRA, ITALY

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<http://mahb.ec.europa.eu>

<http://ipsc.jrc.ec.europa.eu/>

<http://www.jrc.ec.europa.eu/>