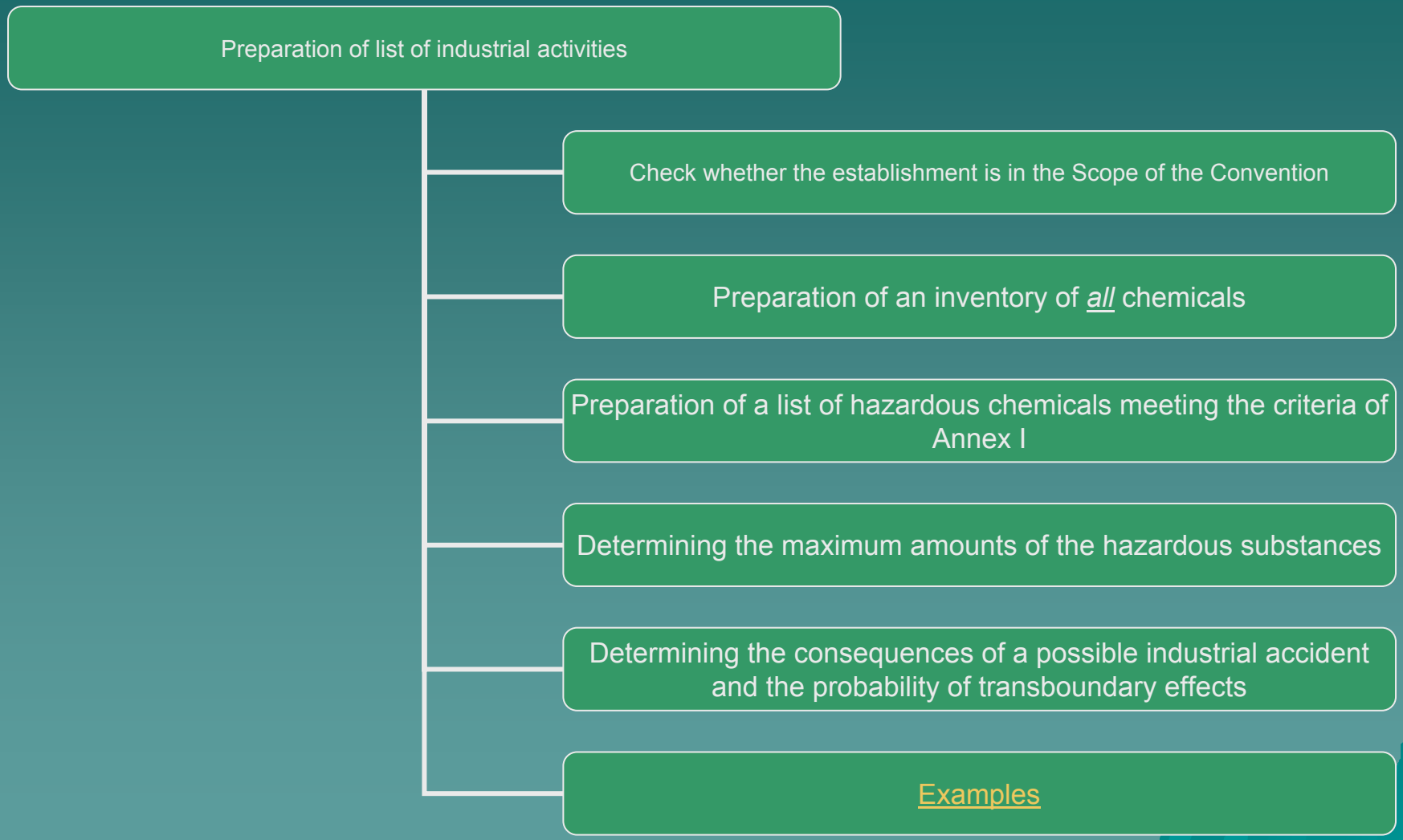
Identification of Hazardous Activities Practical Approach

Republic of Bulgaria

Ministry of Environment and Water


Preparation of list of industrial activities
Check whether the establishment is in the Scope of the Convention
Preparation of an inventory of *all* chemicals
Preparation of a list of hazardous chemicals meeting the criteria of Annex I
Determining the maximum amounts of the hazardous substances
Determining the consequences of a possible industrial accident and the probability of transboundary effects
Examples

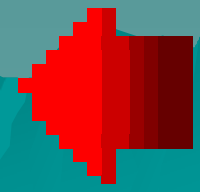
Preparation of list of industrial activities

- Possible sources of information
  - Register of hazardous activities
  - Inventories of establishments working with hazardous substances
  - Register of IPPC sites
  - Register of Seveso II sites
  - Inspection reports
  - Other sources

Check whether the establishment is in the Scope of the Convention

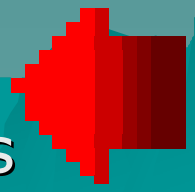
- Article 2 of the Convention
  - Nuclear accidents от radiological emergencies;
  - Military installations;
  - Dam failures, with the exception of the effects of industrial accidents caused by such failures;
  - Land-based transport accidents with the exception of:
    - Emergency response to such accidents;
    - Transportation on the site of the hazardous activity;
  - Accidental release of genetically modified organisms;
  - Accidents caused by activities in the marine environment, including seabed exploration or exploitation;
  - Spills of oil or other harmful substances at sea.
- Local Legislation

Article 5 of the Convention



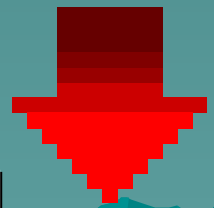
Preparation of an inventory of all chemicals

- Step-by-step approach
- Including all installations in the establishment
  - Storage facilities
  - Production facilities
  - Loading and distributing facilities
- Including all chemicals in the establishment
  - Raw materials
  - Intermediates
  - Byproducts
  - Finished products
  - Substances built during chemical reactions



Preparation of a list of hazardous chemicals meeting the criteria of Annex I

- Hazardous chemicals in Annex I
  - Named substances
  - Hazard classes/Generic properties
    - Toxicity
    - Ecotoxicity
    - Physicochemical properties
- Sources of information
  - National
    - Relevant chemical legislation
    - National registers and inventories
    - National legislation for labour safety
    - National legislation for accident prevention and response



Preparation of a list of hazardous chemicals meeting the criteria of Annex I

- International Sources of information
  - MSDS of the chemicals
    - ILO Database - http://www.ilo.org/public/english/protection/safework/cis/products/icsc/index.htm
    - Other recognised sources - www.physchem.ox.ac.uk/**MSDS**/
  - Classlab – The JRC of the EU database – http://ecb.jrc.it/classification-labelling/search-classlab/
  - Based on Annex I of Directive 67/548/EEC
    - Gives Seveso classes -> connection to Annex I of the Convention
  - ESIS database - The JRC of the EU database – http://ecb.jrc.it/esis/
  - Substances produced or marketed in the EU
    - For HPVC and/or substances of high concern – IUCLID dossier with relevant toxicological and physicochemical properties - http://ecb.jrc.it/esis/index.php?PGM=dat
  - Local legislation for classification of hazardous chemicals
  - ADR (GHS) Classification of the chemicals - http://www.unece.org/trans/danger/publi/ghs/ghs_welcome_e.html
  - Other sources
    - Toxicological properties scientific reports
    - Physicochemical properties scientific reports
    - Modeling software - EPISUITE
    - Websites – Chemfinder, Chemindustry.com, etc.
    - Industry experience

Determining the maximum amounts of the hazardous substances

- For gaseous and liquid chemicals – the storage and production capacities
- For solid chemicals – the amount needed for 100% production capacity, including reserves

For the countries that intend to transpose the Convention through the Seveso II Directive the threshold quantities for hazardous substances with common hazardous properties (same or similar risk phrases) are based on their total amount by using the aggregation rule as laid down in Annex on of the Directive.

For the other countries might be useful to adopt this spproach in order to get the most realistic estimations of the consequenses of a major accident.

Determining the consequences of a possible industrial accident and the probability of transboundary effects

- Methodologies for assessment of the consequences
  - Qualitative
  - Semi-quantitative
  - Quantitative
    - Risk-based
    - Deterministic
- Identification criteria according the manual for implementation
  - Aerial toxic release, fire & explosion – 15 km.
  - Release of toxic, ecotoxic and water endangering chemicals into w
    - Along or within the catchment areas of transboundary rivers, transboundary or international lakes, or within the catchment areas of transboundary groundwaters

Examples

- Examples on identification of dangerous substance within the scope of Annex I of the Convention
  - Parathion-methyl CAS No 298-00-0
    - Used as pesticide
    - ESIS Data
      - General classification
    - Classlab Data
      - specific concentration limits
    - IUCLID Data
      - LD_{50} and LC_{50} data – 4 mg/kg oral toxicity
      - Annex I classification – very toxic (LD_{50} < 25 mg/kg)

ESIS Data for Parathion-methyl CAS No 298-00-0

ECB - ESIS (European chemical Substances Information System). - Windows Internet Explorer

http://ecb.jrc.it/esis/index.php

ESIS : European chemical Substances Information System

Version 5.00

Full Screen

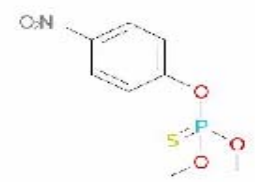
ESIS | EINECS | ELINCS | NLP | PBT | BPD | C & L | HPV-LPV | IUCLID DS | ORATS

Data Availability | Help?

- EC# (EINECS# / ELINCS# / NLP#) 206-050-1 SEARCH

General Information:

EC# : 206-050-1
CAS# : 298-00-0
Substance Name : Parathion-methyl
De : Parathion-methyl
Es : Paration-metil
Fr : Parathion-methyl
Molecular Formula : C8H10NO5PS
Description : Not available



Enlarge Structure

Classification and Labelling Information:

Annex I Index# : 015-035-00-7
Substance Name in Annex 1 : + Parathion - methyl (ISO)
O,O-dimethyl *O*-4-nitrophenyl phosphorothioate
Note : Not available
ATP :

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Classification : R5 - R10 - T+; R26/28 - T; R24 - Xn; R48/22 - N; R50-53
Risk Phrases : + R5 : Heating may cause an explosion.
: + R10 : Flammable.
: + R24 : Toxic in contact with skin.
: + R26/28 : Very toxic by inhalation and if swallowed.
: + R48/22 : Harmful: danger of serious damage to health by prolonged exposure if swallowed.
: + R50/53 : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Phrases : + S1/2 : Keep locked up and out of the reach of children.
: + S28 : After contact with skin, wash immediately with plenty of . . . (to be specified by the manufacturer).
: + S36/37 : Wear suitable protective clothing and gloves.
: + S45 : In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
: + S60 : This material and its container must be disposed of as hazardous waste.
: + S61 : Avoid release to the environment. Refer to special instructions/Safety data sheets.
Symbol(s) and :

ESIS (European chemical Substances Information System) by Rémi ALLANOU - ECB - JRC - EEC

Internet 100%

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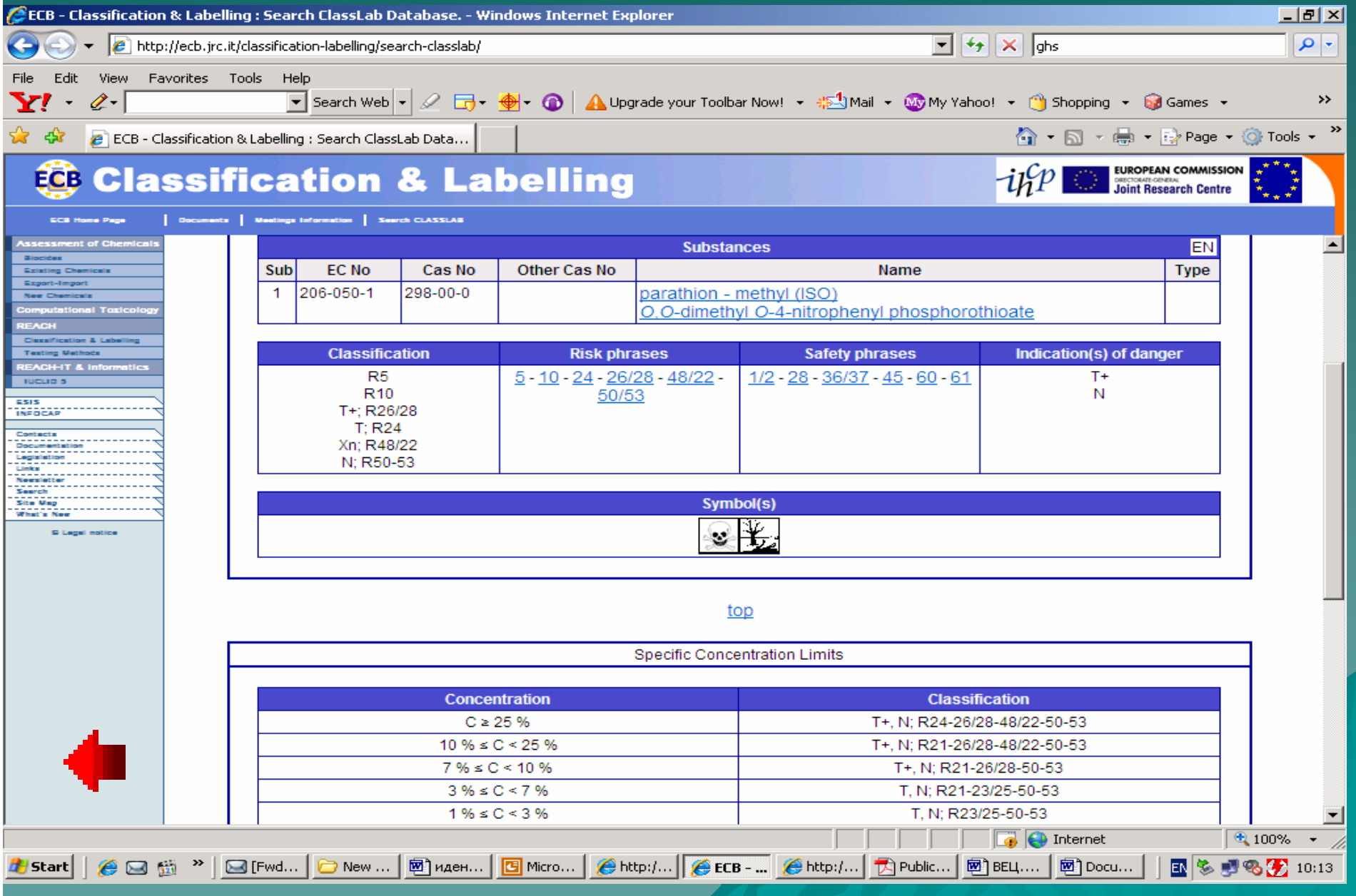
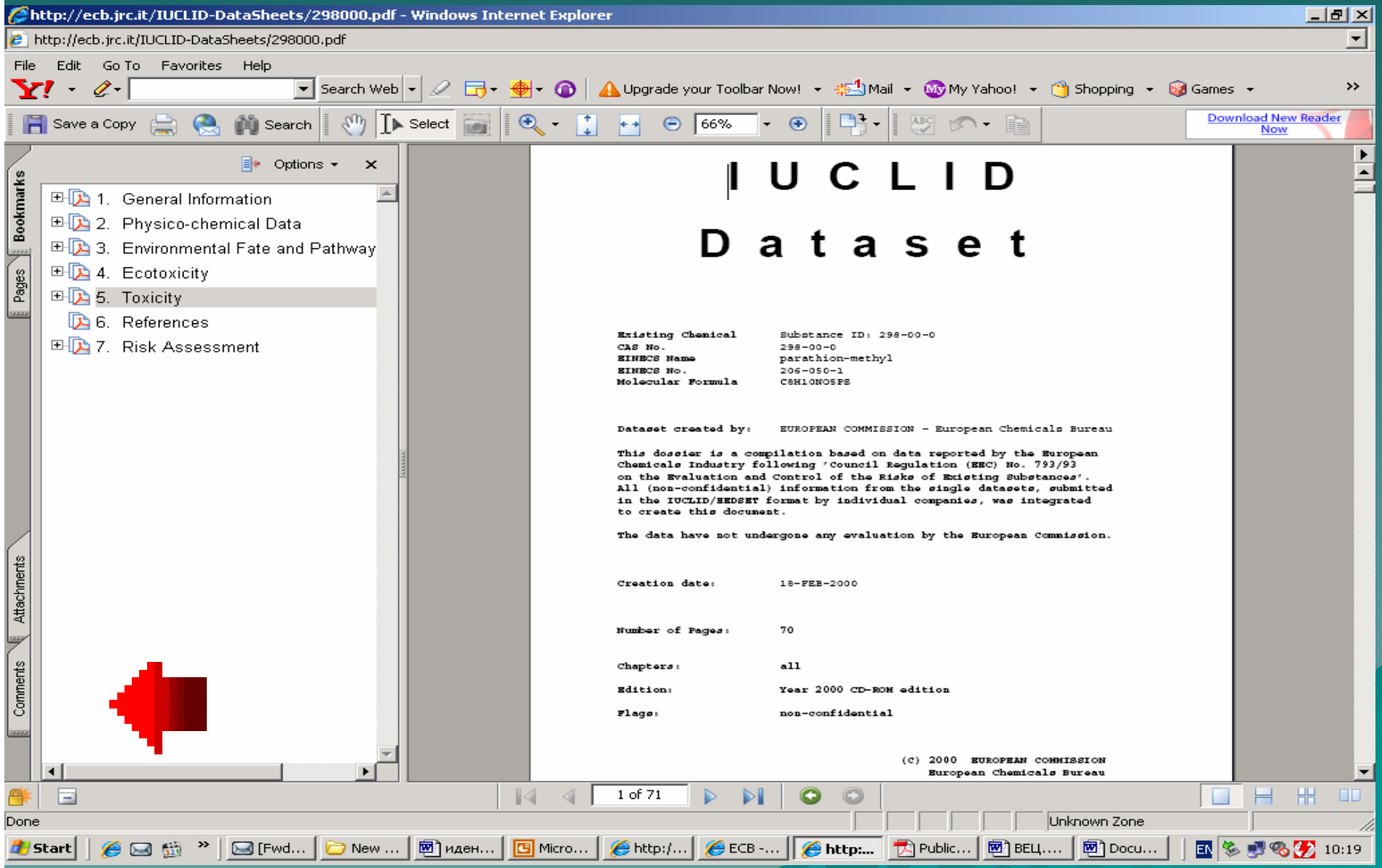
Classlab Data for Parathion-methyl CAS No 298-00-0



IUCLID Data for Parathion-methyl CAS No 298-00-0



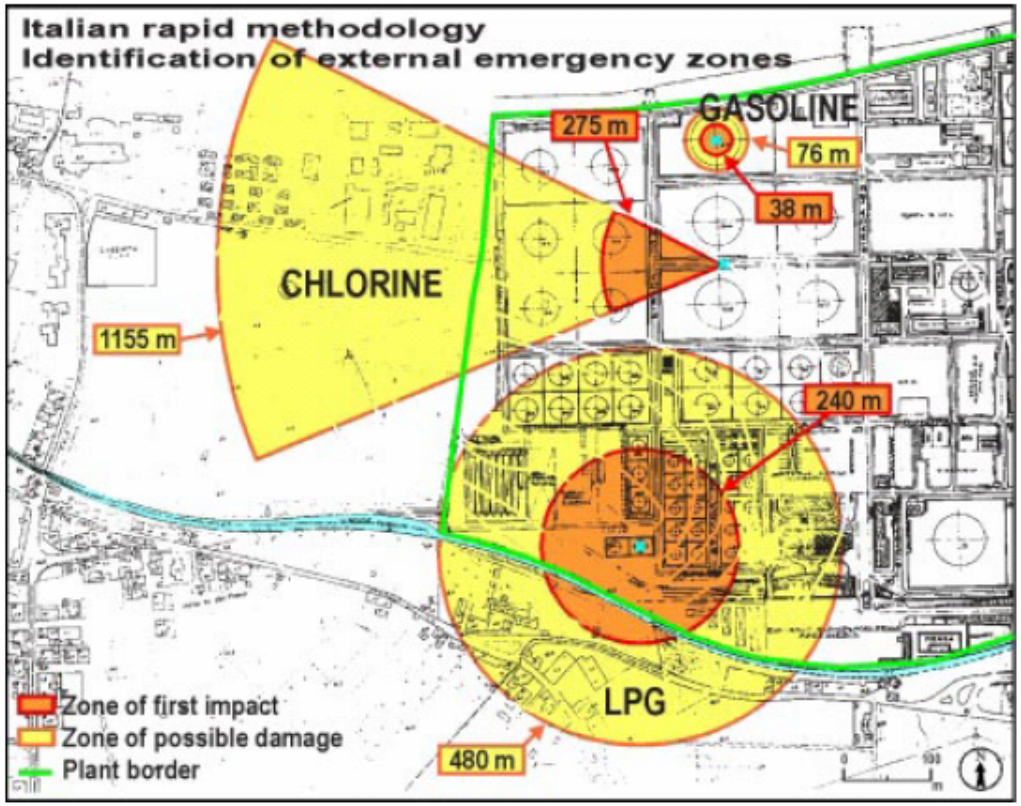
Examples on determining the consequences of a possible industrial accident and the probability of transboundary effects

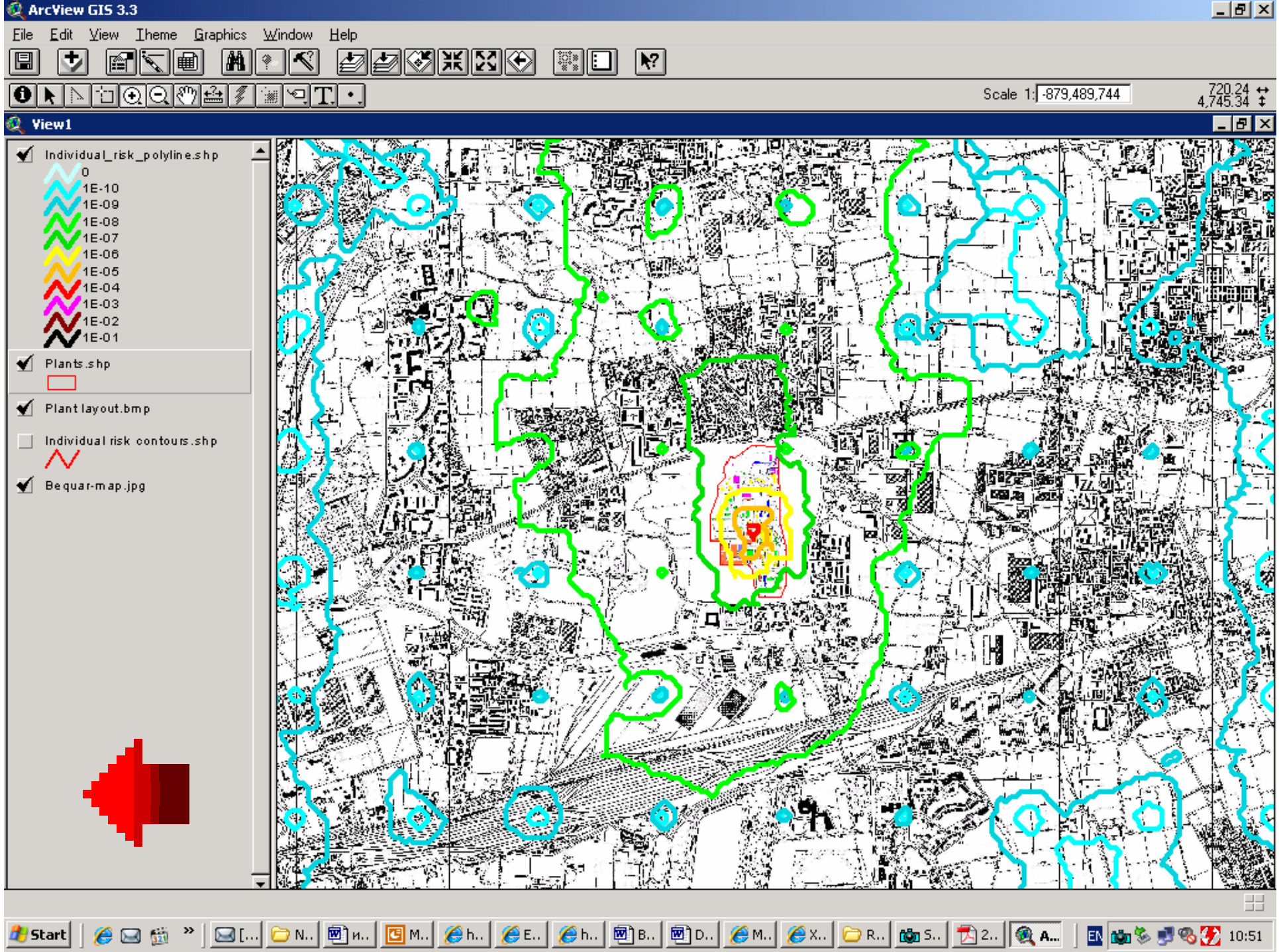
- Identification criteria according the draft decision on criteria and guidelines to facilitate the identification and notification of hazardous activities
- Rapid risk assessment methodology – based on Tecdoc 727 of IAEA
  - "Quick and dirty"
  - Aerial extent according the quantity and the properties of the substance
  - For fire, explosion and toxic release risks
- Quantitative risk assessment
  - Gives individual and/or social risk
  - Could be graphically represented

CASE 1: RELEASE OF 20 TONS OF CHLORINE, TOXIC DISPERSION

CASE 2: RELEASE OF 300 TONS, UNCONFINED VAPOUR EXPLOSION

CASE 3: RELEASE OF 7500 TONS OF GASOLINE, POOL FIRE

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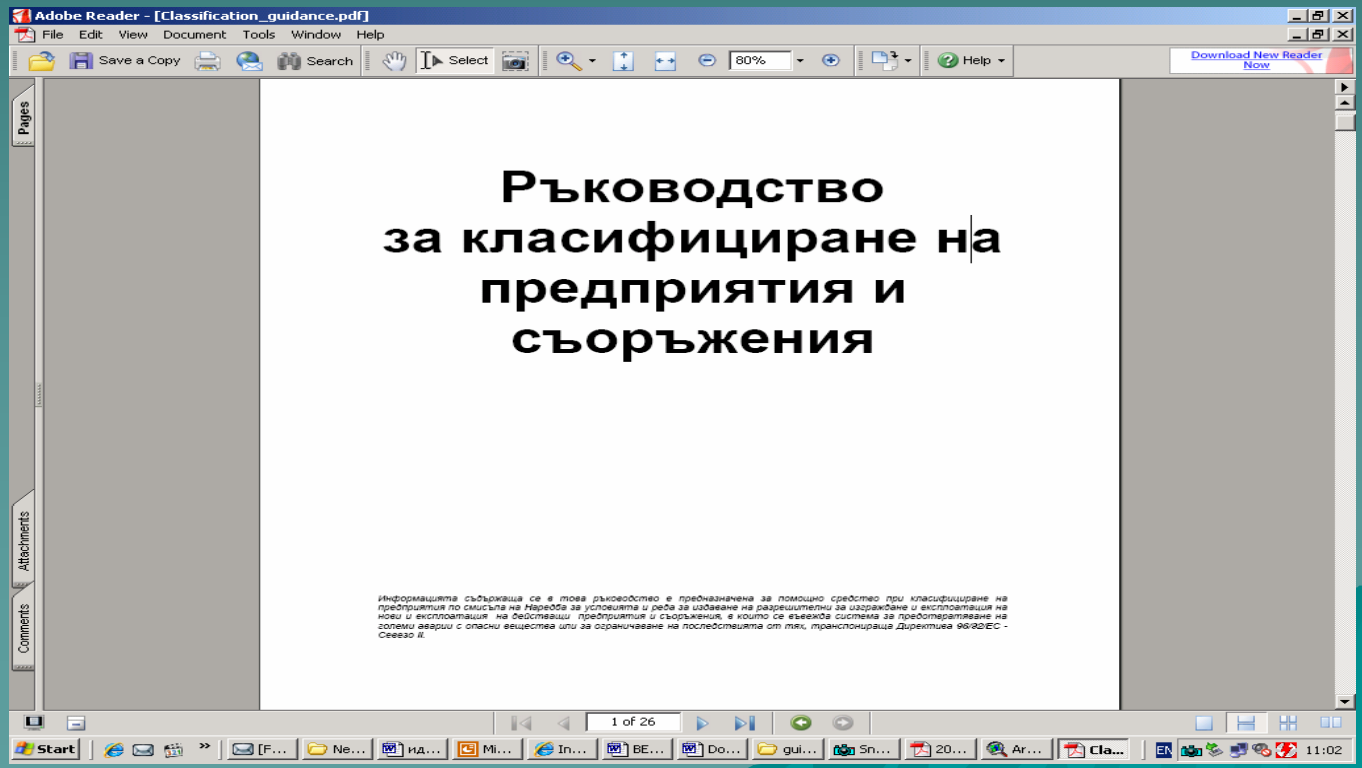
Bulgarian Experience in the Identification of Dangerous Substances

- Started 1999
- Elaboration of national framework and subsequent legislation
  - 2002 – Environmental Protection Act
    - Classification of hazardous activities is a duty of the operator
  - 2000 – Chemicals Act
    - Gives classification criteria
- Elaboration of inventory of possible hazardous activities
  - Based on inspection results, lists of controlled sites, feedback from industry
  - Exclusion of establishments and activities out of the scope of the Convention

Bulgarian Experience in the Identification of Dangerous Substances

- 2000 - 2002
  - Seminars and workshops with the Industry
  - Result – Classification manual



Bulgarian Experience in the Identification of Dangerous Substances

- 2004 – 2006
  - Notifications from the operators
- 2006 - 2007
  - 90 % of Seveso sites submitted documentation
  - Evaluation of hazardous activities with potential for transboundary accident
  - Elaboration of inventory of hazardous activities
- 2008
  - Notification of the hazardous activities to Affected Parties (Romania only)