



Solvents: Simply Essential

The HSE Program of the - European Solvents Industry

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Scope

- **Introduction to ESIG**
- **ESIG's Commitment to Responsible Care**
 - **Health & Safety**
 - **Environment**
- **Summary**



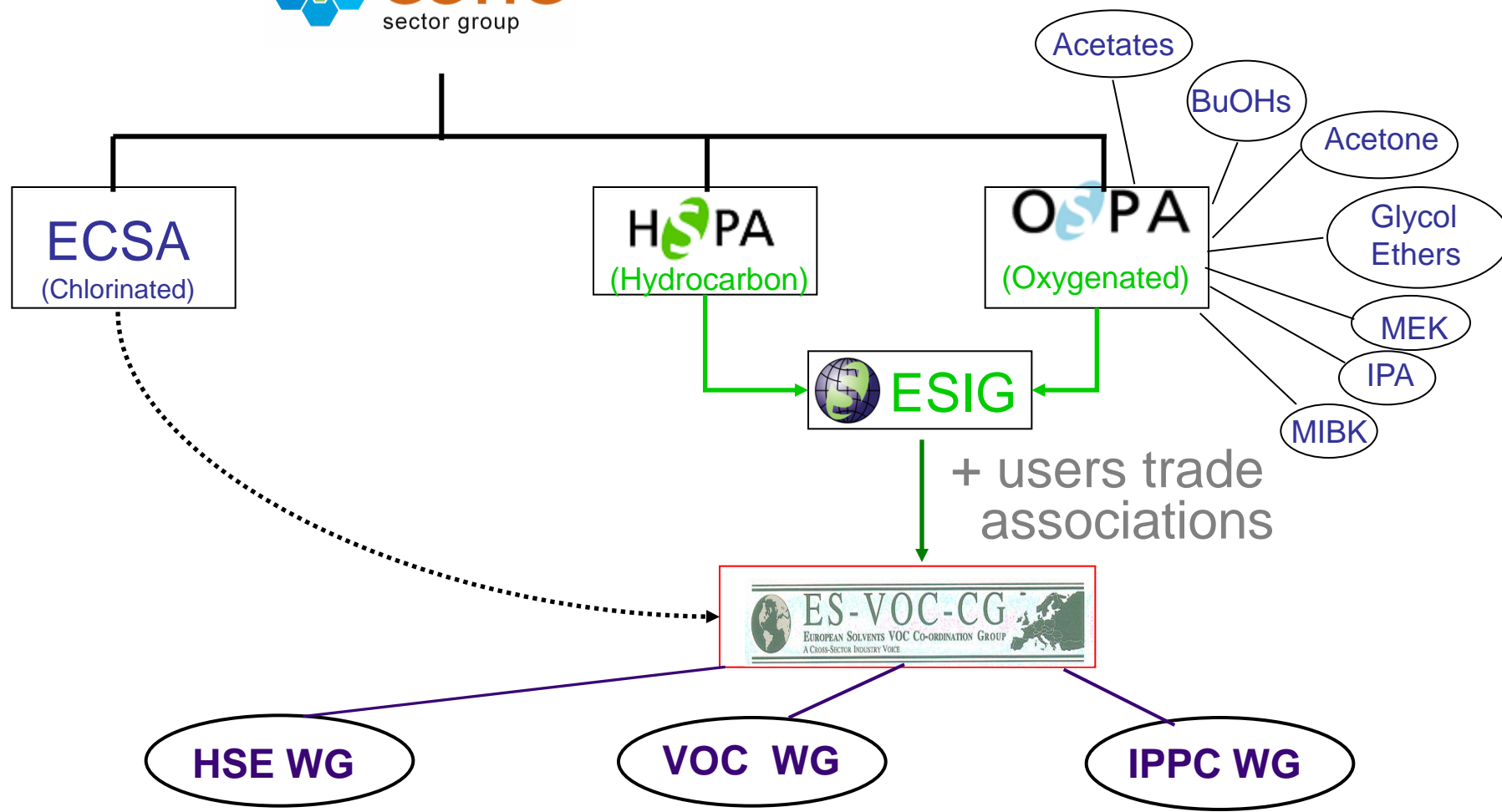
The Solvents Industry: Facts and Figures

- **The solvents' industry directly accounts for**
 - **> 10,000 jobs in Europe**
 - **~ 5 bn € estimated combined turnover**
- **The solvent using industries account for**
 - **> 10 million jobs in Europe**
 - **> 200 bn € estimated combined turnover**
 - **> 500,000 companies operating in a wide range of very diversified applications**
 - **> 80% of them are SMEs**

High contribution to social and economic welfare!



The Solvents' Cluster Organogram





Our Members



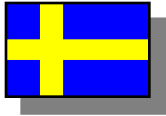
- **HSPA: 11 members**

- Cepsa Química
- DHC Solvent Chemie
- Dow Haltermann
- ExxonMobil
- Galp
- Hellenic Petroleum
- Neste Oil
- Petrochem Carless
- Sasol
- Shell Chemicals
- Total Fluides



- **OSPA: 21 members**

- Arkema
- BASF
- Borealis
- Celanese
- Cepsa Química
- Clariant
- Domo
- Dow
- Ercros
- ExxonMobil
- Ineos Phenolchemie
- Ineos Oxide
- LyondellBasell
- Oxea Chemicals
- Oxochimie
- Perstorp
- Polimeri Europa
- Novacap
- Sasol
- Sekab
- Shell Chemicals



Our Programmes

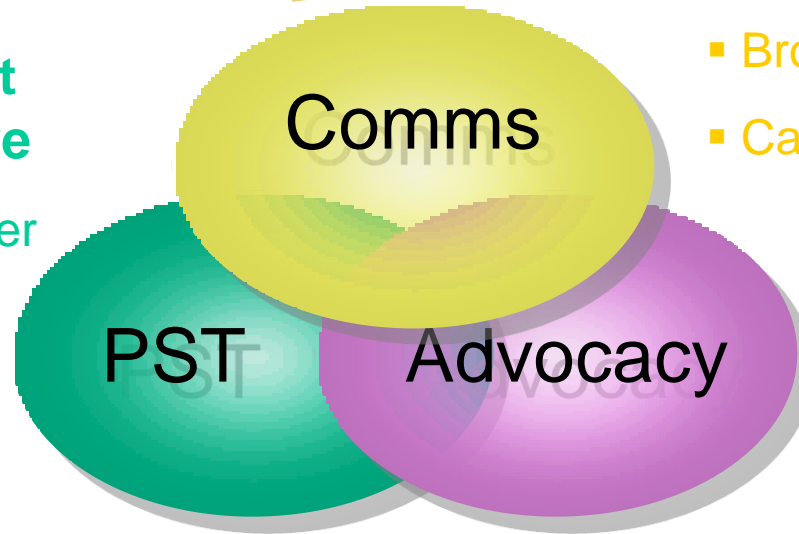


Focus: Commitment to Responsible Care

- Dos and Don'ts' Poster
- Exposure at Work
- Best Practices
- Product Stewardship Award
- Simplified information for SMEs
- REACH GES Library

Focus: Visibility and Perception

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- Website: www.esig.org
 - Newsletter "Solutions"
 - Brochures
 - Campaigning at Congresses



Focus: Air Issues, such as:

- National Emission Ceiling's Revision (NEC)
- Solvents Emission Directive Implementation (SED)
- DecoPaint Directive Revision



Health & Safety: ESIG's Product Stewardship Programme

Mission: cooperate with solvent users to improve health, safety and environment protection by sharing best practices and proactively promote compliance with legislation

Key areas:

- 1. Health:** Workers' health in SMEs (vapour/dermal)
- 2. Safety:** Workers' safety in SMEs
- 3. Environment:** Environmental air emissions from SMEs





ESIG's « Safe Handling of Solvents Campaign »

- DO's and DON'TS poster
- Solvents @ Work brochure
 - A guide to safe working practices
 - Produced in collaboration with the UK Health and Safety Executive
- DVD “The Safe Handling of Solvents” (5 languages in one medium)

THE DO'S AND DON'TS FOR THE SAFE USE OF SOLVENTS

SAFETY DATA SHEET Do read the label and safety data sheet	NO SMOKING OR OTHER TOBACCO Don't smoke when using solvents and avoid all open flames
EYE PROTECTION Do wear safety glasses or goggles as indicated	STATIC ELECTRICITY Don't touch or avoid static electricity. Ground yourself
VENTILATION Do ensure good ventilation and wear respiratory equipment when working in poorly ventilated areas	VAPOUR Don't have containers open around hot things
SKIN PROTECTION Do wear gloves and protective clothing. Avoid contact with any area of skin whenever possible	NO EATING OR DRINKING Don't eat or drink while using solvents
DISPOSAL Do dispose of properly in line with local regulations	DISPOSAL Don't pour solvents down the drain or into soil

Advice and help in hydrocarbon and oxygenated solvents

The content is provided by the European Solvents Industry Group. It defines minimum requirements given a scenario in the field of the knowledge of ESIG and it gives a good basis. However, users at all times the responsibility of the substances, use in particular the safety data sheets, the information on the containers and the instructions on the labels. The safety information on the labels is normally written in French or German. Further information: Solvents Group ESIG, Street 1, 44139 Düsseldorf, Tel: 0049 2129 7112, Fax: 0049 2129 7113, Email: esig@esig.de



Solvents @ work

A guide to safeworking practices

WHAT SHOULD I TAKE?

Check the procedures you should take, the action and training is so important.

In details of the hazards of the particular when you use them and the procedures to

Container labels and follow the advice on you need to:

to be used.

Get your employer provide to remove oil or defective ventilation plant or

your employer provides. Keep protective to keep clean so it is fit to use

use appropriate, by opening doors and

with by using them remain accept for during sealed containers for solvent

ling around.

any products containing solvents by use, wash, goggles or face shield etc.

we use from your skin.

DO NOT GET OR DRINK IN A PLACE WHERE THERE ARE SOLVENTS.

Wash thoroughly after working with solvents before eating or smoking.

Do not smoke, eat, drink or use unguarded lights in areas which may contain solvent vapour.

RIGHT BEHAVIOUR:

If you work with solvents, or if you're being taken, you should first wear a doctor at appropriate. Show

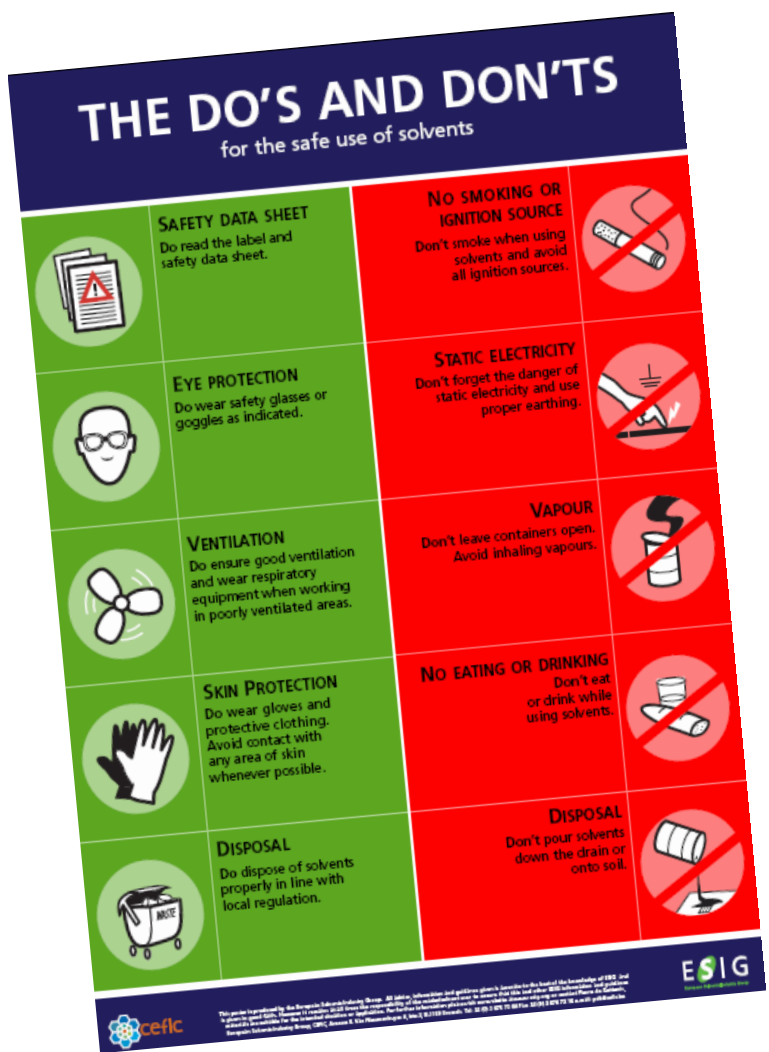
Available in:



- English
- French
- German
- Dutch
- Italian
- Spanish
- Portugese
- Greek
- Danish
- Swedish
- Finnish
- Polish
- Czech
- Slovakian
- Hungarian
- Slovenian
- Turkish

You can order all ESIG publications at www.esig.org!

Response to Posters (Opinion Survey 2005)



6,000 respondents in total

➤ 90% respondents found the poster useful

➤ 98% display the poster in their workplace



Static Electricity DVD



- Deals with one of the major sources of accidents
- Target group: everyone, who handles solvents
- Practical advice on how to avoid hazards and accidents
- English, German, French, Italian and Spanish on the same DVD
- In cooperation with the British Solvents Industry Association (SIA)

Best Practice Guidelines 1, 2, 3 and 4



Measuring solvent vapour concentrations in the work environment

Helps solvent users design simple and effective monitoring programmes to measure airborne solvent vapour concentrations.



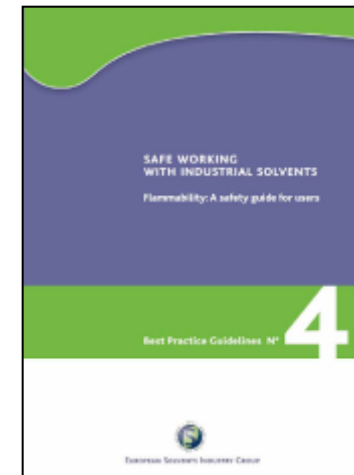
Guide to Managing Solvent Exposure

Provides easy to follow guidance to all solvents users (including SMEs), enabling them to ensure that solvents are used safely.



Practical guidelines for measuring solvent vapour concentration using chemical indicator tubes

Provides practical guidance to help solvent users in the measurement of airborne solvent vapour concentrations in the workplace. Supplements Best Practice Guidelines 1.



Safe working with industrial solvents. Flammability : A safety guide for users.

Explains the main characteristics of solvents flammability, and provides recommendations for safe use. The important aspect of static electricity is covered in detail.

Best Practices for the Use of Gloves

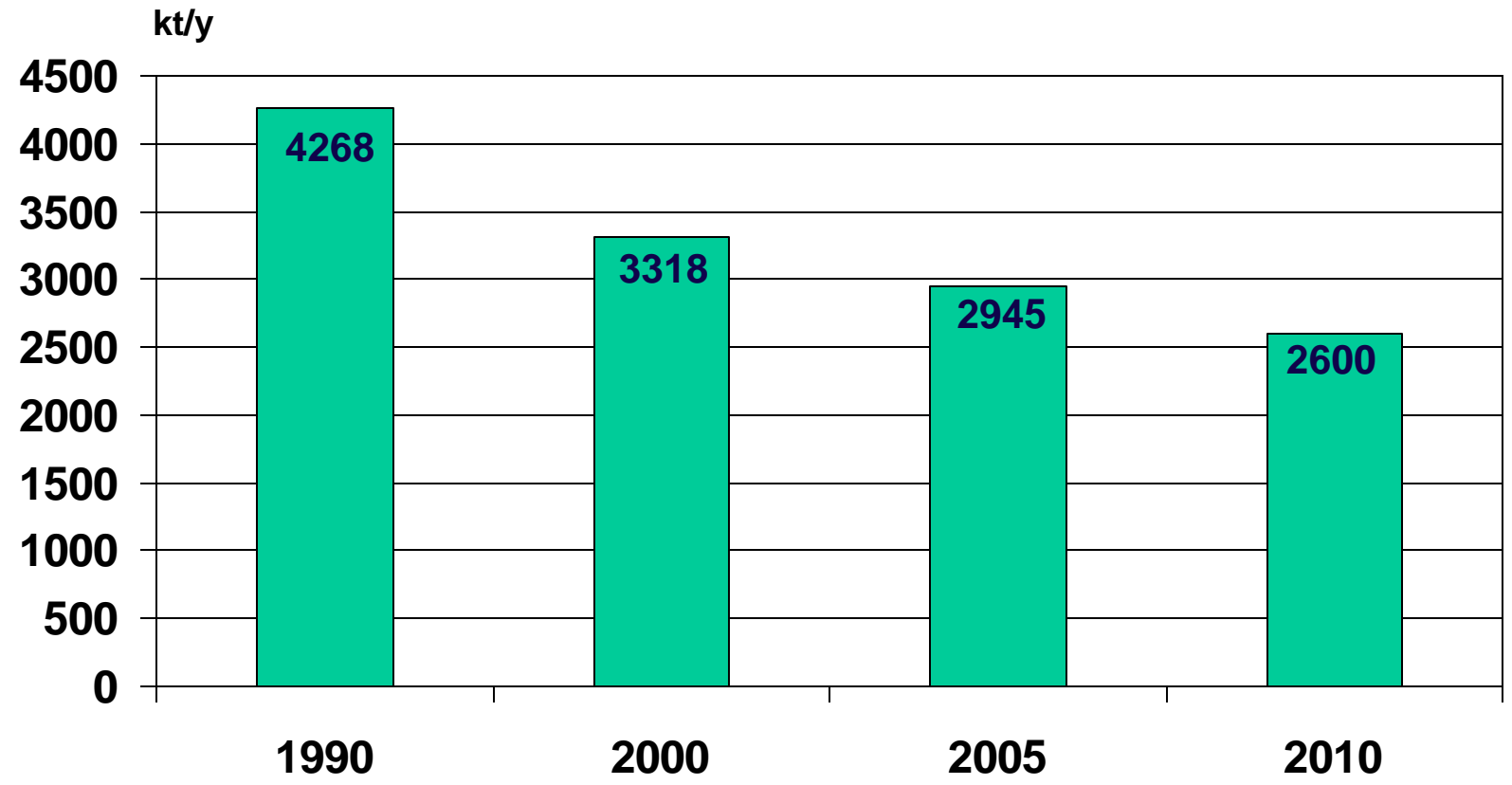
- ESIG Best Practice Guideline Volume 5 – Brochure & Poster
- In cooperation with the European Safety Federation (ESF)
- Practical advice on which type of gloves to use for which solvent
- Available in English since summer 2010
- Translations into other languages planned





Environment: VOC Emissions in Europe (EU 15) from Solvents

Solvent users reduced VOC emissions by 1,3 million tonnes between 1990 and 2005 in EU 15. This is a reduction of 31%!



Source: European Commission (IIASA/RAINS model)



Air Quality – Future Contributions from the Solvents Sector?

In 2006 two independent model runs - by TNO, NL (LOTUSEUROS Model) and INERIS, F (Chimere Model) projecting ozone levels following certain VOC regulatory measures showed

- **Any additional VOC reduction from solvents within the boundaries of technical feasibility will deliver an ozone reduction of < 1%, expressed as $\mu\text{g}/\text{m}^3$!**





Air Quality – Future Contributions from the Solvents Sector?

Third Independent Model – UK's Harwell Trajectory Model - confirmed these results in February 2009:

- ✓ SED has played a significant role in reducing ground level ozone (7.9 ppb from 1990 to 2008)
- ✓ The Deco Paint Directive has had only limited impact (0.9 ppb)
- ✓ Further reductions of VOC emissions from solvents will have no effect on ozone (0.2 ppb)

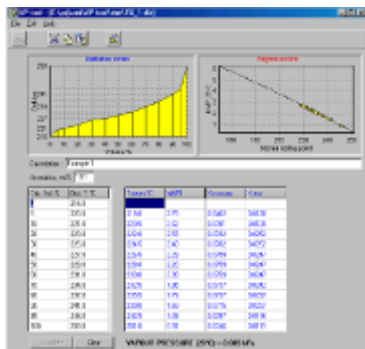
→ ESVOC Position Paper « The Ozone Challenge »

Peak Ozone (ppb ozone)	1990	2005	delta	reduction obtained with solvents control
with solvents control	94.6	66.4	28.2	6.7 ppb or 24% reduction
without solvents control	94.6	73.1	21.5	

a) Software tools: (available for download from www.esig.org)



» **ESIG Abatement advisor** - A user-friendly guide to abatement technology. Helps to understand and evaluate users' own particular circumstances and the options available to them.



» **ESIG Vapour pressure tool** - a calculation tool that will help to determine whether hydrocarbon solvents are VOCs as defined by the EU Solvent Emissions Directive (or VOC Directive). This tool is meant to facilitate the often complex task of establishing vapour pressures of hydrocarbon solvents of low volatility.

b) Help and Guidance for SED Compliance on ESIG Homepage

c) Active Cooperation with Regulators on BREFs



Other Guidance on www.esig.org

- Joint CBA, SIA and ESIG **Seminar on « Combustible Liquids in IBCs » in Coventry (UK)** on 19 March 2009
 - SIA/ESIG DVD on the safe handling of IBCs projected for 2011, in cooperation with other Associations (Distributors, Transporters, etc.)
- Promotion of generic guidelines:
 - Guidelines for the **Safe Loading and Unloading of Road Freight Vehicles** (BBS Programme by Cefic and ECTA)
 - **Guidelines for Transport Equipment Used for Chemical Packed Cargo** (BBS Programme by Cefic and ECTA)



The ESIG Product Stewardship Award

- **Objective:** To promote and reward best practice in the responsible use of solvents
- **Target group:** key solvent using sectors and distributors, esp. SME
- Takes place in 2-3 year intervals; 7th round in 2009
- Applications arrived from all across Europe, also from Turkey
- Award ceremony at CEFIC Responsible Care Forum in Prague in Oct 09
- Independent expert jury from EU authorities, media and trade associations



... and the winner 2009 was... CSC Jaklechemie!

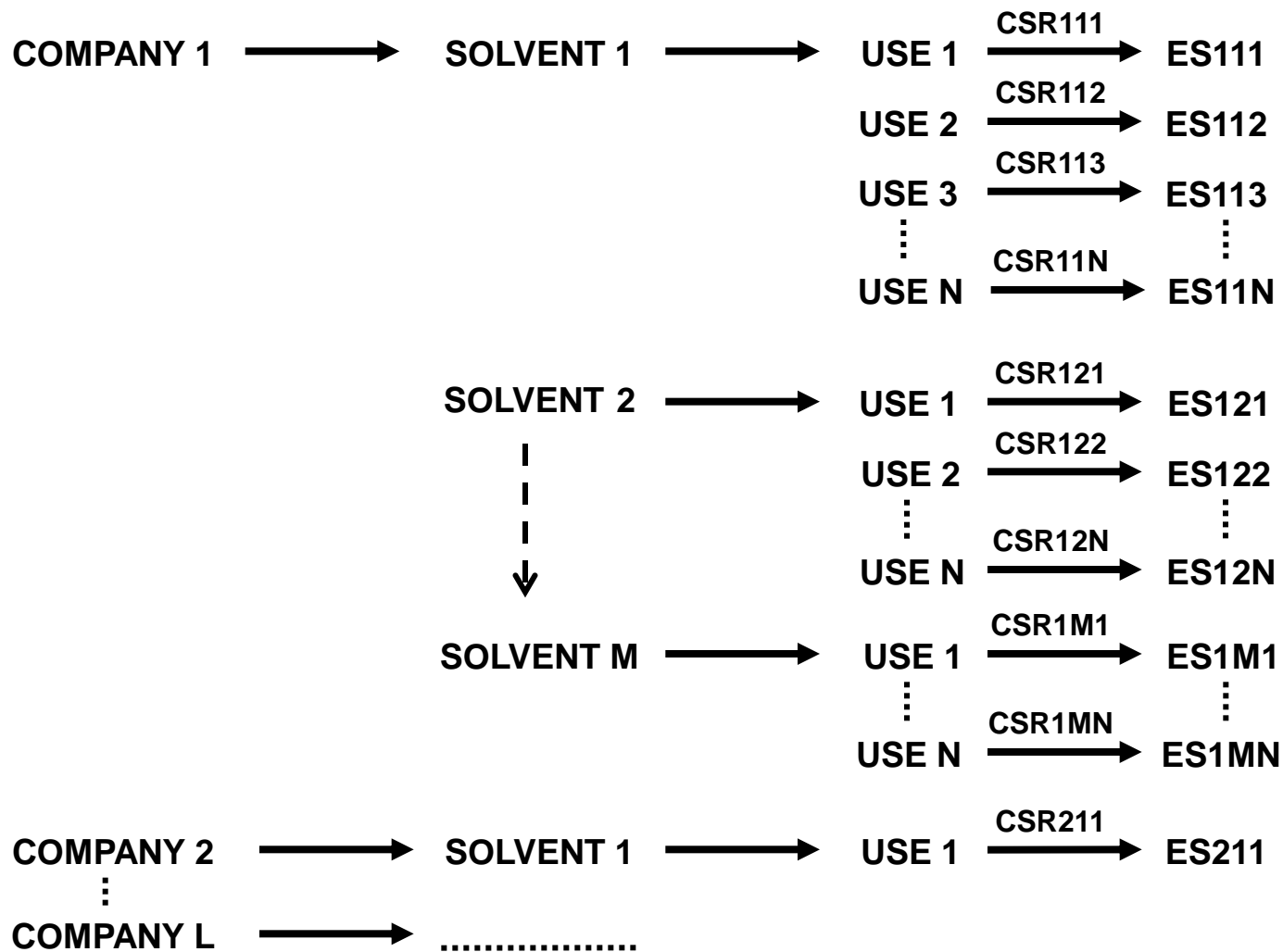


ESIG & REACH Implementation

- ESIG has devised and piloted the Generic Exposure Scenarios approach, which covers more than 80% of the known uses, together with several downstream user associations
- Reduced complexity by standardized tools and communication with downstream users → cost and time savings for all parties
- ESIG/ESVOC works are most advanced in industry landscape
 - Generic exposure scenario library as standard methodology for solvent producers and users → supported by ESVOC
 - IOM exposure database, published data (inhalation + dermal)
 - Endorsed by ECHA and entered into REACH best practice guidelines
 - Cefic is rolling out ESIG/ESVOC approach to all other industry sectors

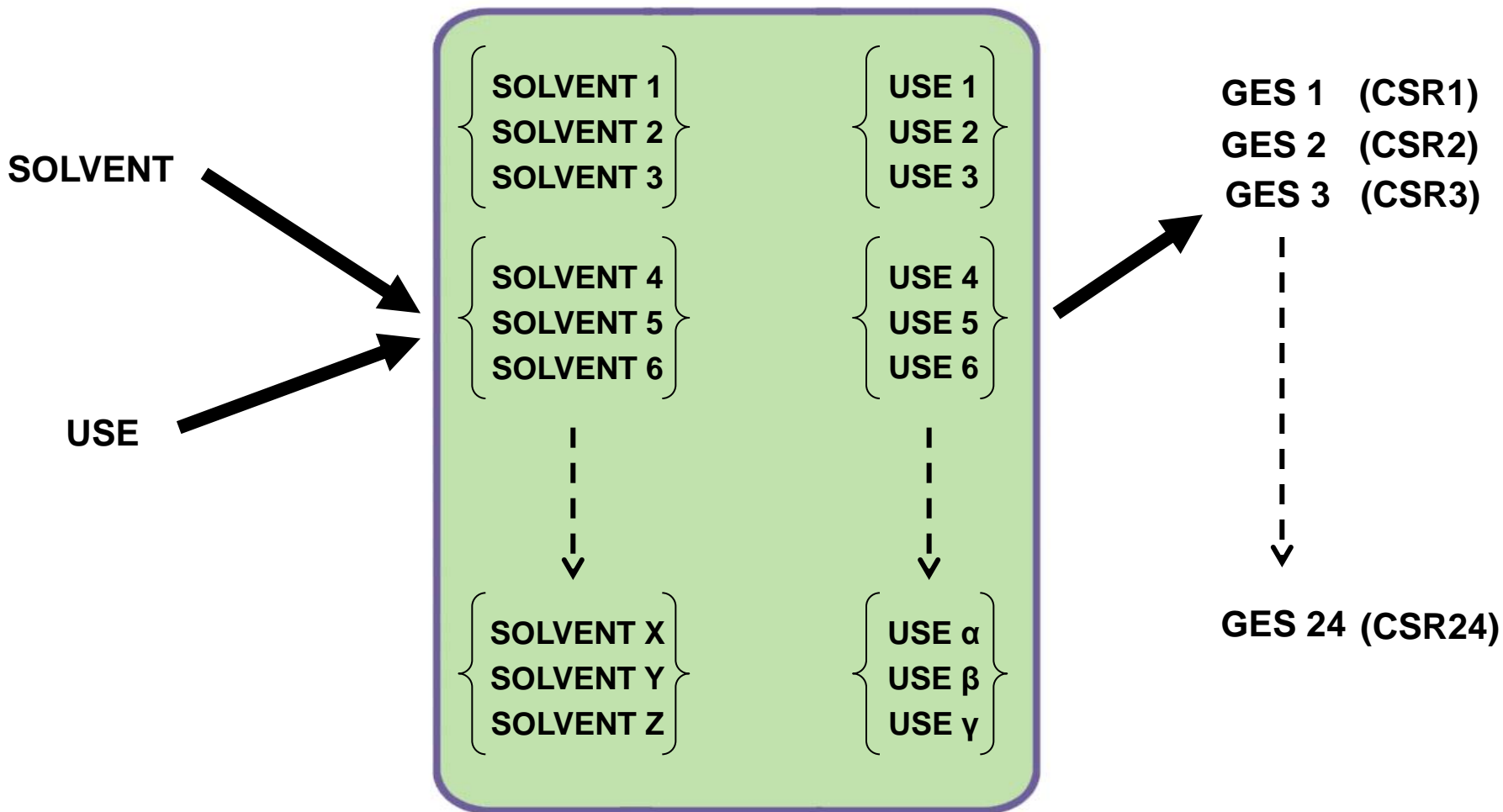


Development of ES under REACH



TOTAL INDUSTRY NUMBER ES = $L \times N \times M$

ESIG





Summary

- Solvent producers and users are an important factor within the European economy
- The solvents' industry dedicates substantial efforts and resources to make their products as environmentally friendly and safe to handle as possible
- The solvents' industry has significantly reduced VOC emissions over the last two decades
- 3 different air quality models from 3 different European countries have shown independently from each other that further VOC reductions from solvents would have a close-to-zero effect on ozone
- Transboundary air pollution needs to be tackled politically and on a global level



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Please visit us at www.esig.org

Thank you for your attention!