

Seveso III Directive

Implications for Irish Industry

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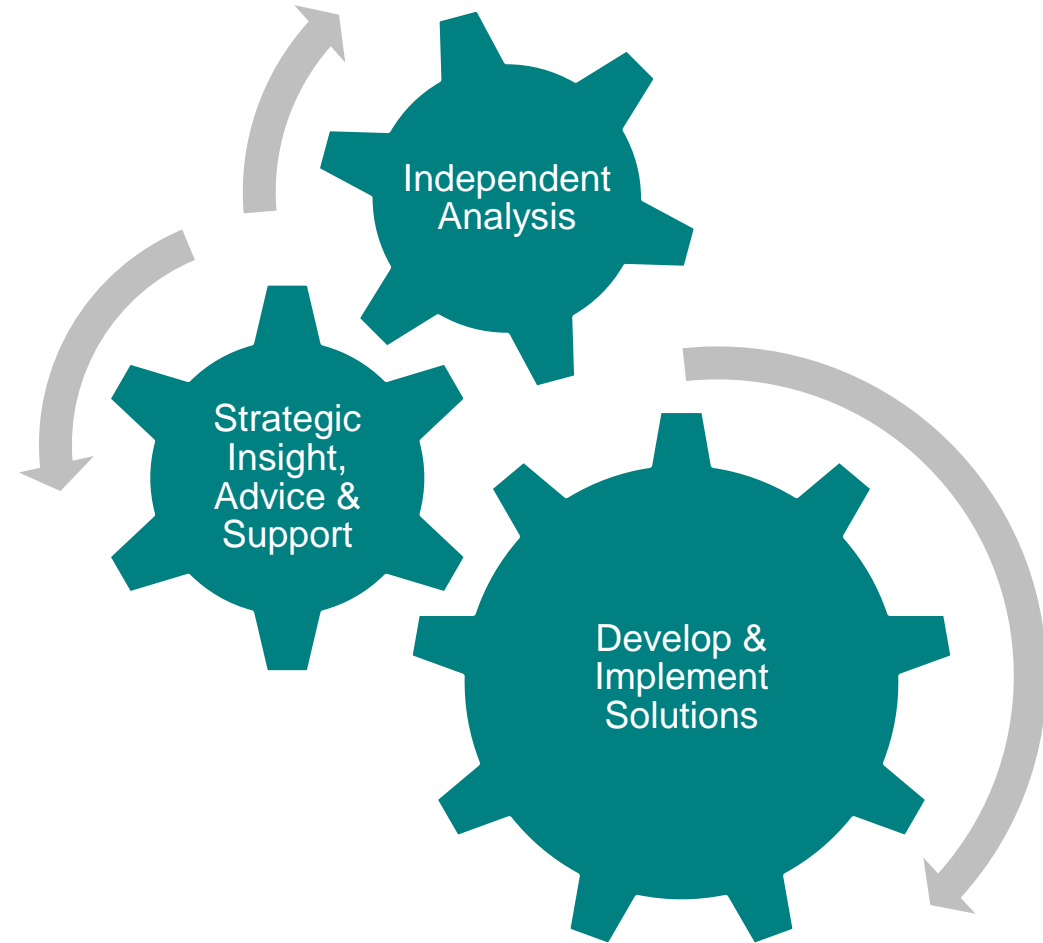
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- Management & Engineering

Consultancy since 1981:

- Energy
- Risk Management
- Environmental Protection

- Blue chip client base in private & public sector



Seveso / COMAH History

- Seveso I – 1982: Directive 82/501/EC (SI 292 of 1986)
- Seveso II – 1996: Directive 96/82/EC (SI 476 of 2000)
 - Wider range of substances
 - Environmental releases
 - Specified Area for emergency planning
 - HSA role in land-use planning
 - Specific duty on HSA to prohibit or restrict unsafe operation
 - Strong emphasis on management systems
- Seveso II – 2003: Directive 2003/105/EC (SI 74 of 2006)
 - Changes to Annex I to reflect ATP
- Seveso III – 2012: Directive 2012/18/EU (2015)



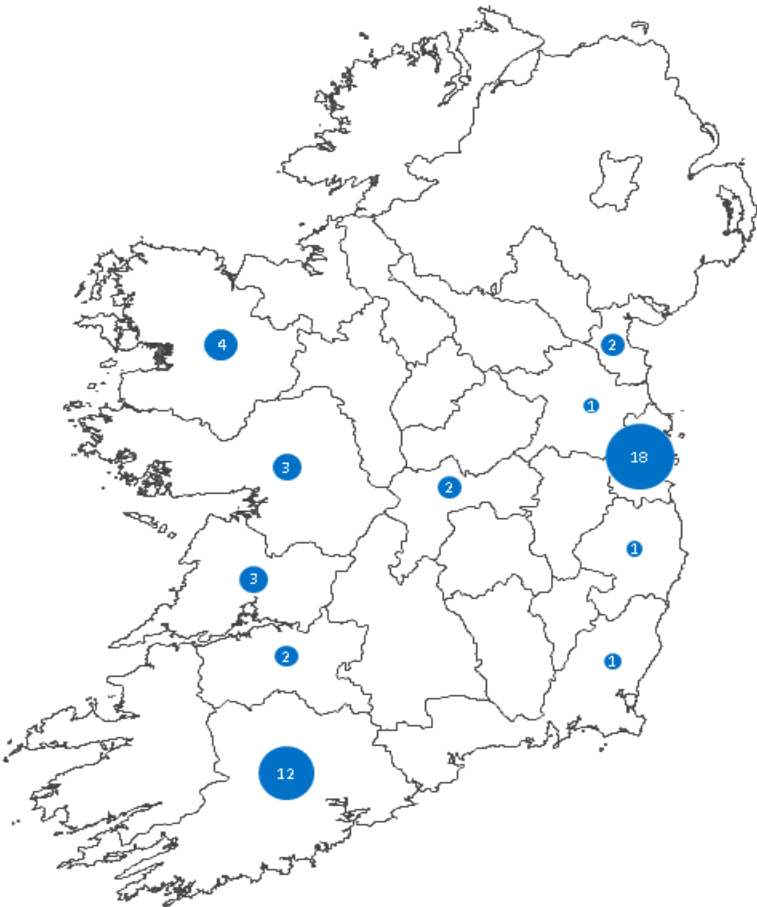
Focus is on Major Accidents

- Seveso III
 - “an occurrence such as a **major** emission, fire or explosion resulting from uncontrolled developments in the course of the operation of any **establishment** covered by this Directive, and leading to a serious danger to **human health** or the **environment**, immediate or delayed, inside or outside the establishment, and involving one or more **dangerous substances**.”
- General duty of Operators
 - “to take **all necessary measures** to prevent major accidents and to limit their consequences for human health and the environment”

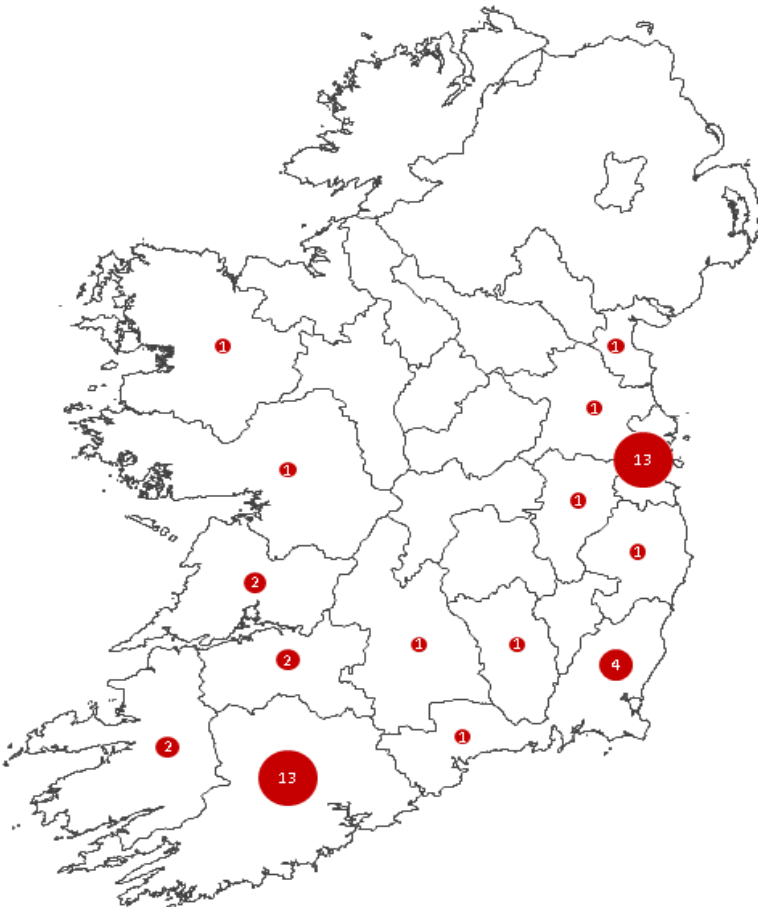
Principal Obligations

Obligation	Lower Tier	Upper Tier
Notification to Competent Authorities	✓	✓
Major Accident Prevention Policy (MAPP) & Safety Management System (SMS) to implement it	✓	✓
Hazard Identification and Risk Assessment (HAZID)	✓	✓
Internal Emergency Plan	~	✓
Information to Authorities for External Emergency Plan	~	✓
Safety Report	x	✓
Information to the Public	x	✓
Information to Planning Authorities	✓	✓
Consider inter-site domino effects	✓	✓

Existing Seveso Establishments



Lower Tier Establishments



Upper Tier Establishments

Transition from Seveso II to Seveso III

- Changes to the system for classifying materials
- Status of some sites could change
 - Newly qualified establishments, at lower or upper tier
 - Some operators may move from lower to upper tier, and vice versa
 - Some establishments may drop out of the regime
 - In most cases the status will remain unchanged
- Other changes
 - Derogations / safeguards
 - Information to the public
 - HSA inspections

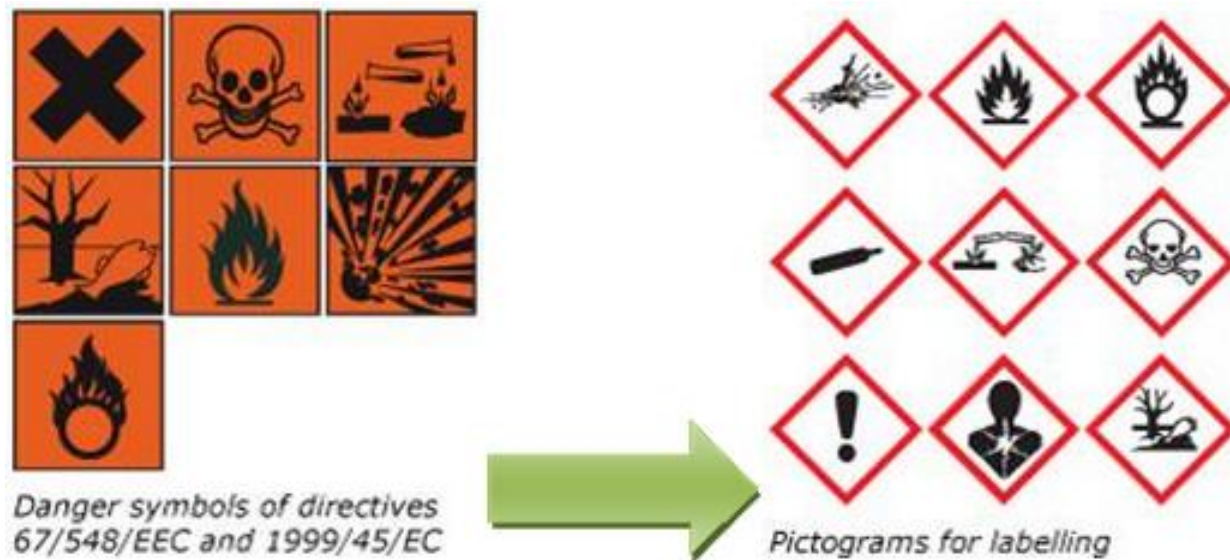


System for Classification of Materials

- Seveso – Major Accidents involving Dangerous Substances
 - Fire Hazard (Flammable / Explosive / Oxidising)
 - Acute Toxic Hazard
 - Eco-Toxic Materials
 - Other (water reactives, some carcinogens)
- Seveso II – Dangerous Substances Directive (DSD)
- DSD is being phased out
- Replaced by Classification Labelling and Packaging (CLP) Regulation
- Seveso III Directive – National Legislation by June 2015

System for Classification of Materials

- Changes from DSD to CLP
 - Hazard Labels → Pictograms
 - Risk Phrases → Hazard Statements



Source: www.hsa.ie

Hazard Statements

- 200: Physical Hazards
 - Fires, explosions, corrosives etc.
- 300: Health Hazards
 - Acute and chronic effects
- 400: Environmental Hazards
 - Aquatic environment and ozone
- Other Hazards (EUH Statements)
 - Specific to EU (various older R nos.)



CLP Regulation (EC) No. 1272 / 2008
on the classification, labelling and packaging
of substances and mixtures



Rev.0, October 2010

Hazard Statements (H- Statements)⁽¹⁾



GHS01

GHS02

GHS03

GHS04

(1) Are still discussed in the UN, changes may still arise.

H 200 - Series: physical Hazards

H200	Unstable explosive
H201	Explosive; mass explosion hazard
H202	Explosive; severe projection hazard
H203	Explosive; fire, blast or projection hazard
H204	Fire or projection hazard
H205	May mass explode in fire
H220	Extremely flammable gas
H221	Flammable gas
H222	Extremely flammable aerosol
H223	Flammable material
H224	Extremely flammable liquid and vapour
H225	Highly flammable liquid and vapour
H226	Flammable liquid and vapour
H228	Flammable solid
H240	Heating may cause an explosion
H241	Heating may cause a fire or explosion
H242	Heating may cause a fire
H250	Catches fire spontaneously if exposed to air
H251	Self-heating; may catch fire
H252	Self-heating in large quantities; may catch fire
H260	In contact with water releases flammable gases which may ignite spontaneously
H261	In contact with water releases flammable gas

Seveso III Substances

- Materials identified in Annex I of Seveso III Directive
 - Part 1 – Categories of Dangerous Substances
 - Part 2 – Named Dangerous Substances
- Categories of Dangerous Substances
 - H – Health Hazards (acute toxicity)
 - P – Physical Hazards (various fire / explosion hazards)
 - E – Environmental Hazards (aquatic environment)
 - O – Other Hazards (water-reactives, some carcinogens)
- Named Substances generally fall within these categories
- Addition Rule for combining materials with similar hazards

Complications with Transition

- Will not be a neat transition for all hazard categories

- Acute Toxicity:

- LD50, LC50 thresholds

- Flammability:

- Changes to Boiling Point and Flash Point thresholds

- Mixtures and Preparations

- Changes to aggregation rules (M-factor for ecotoxic materials)

	Dangerous Substances Classification		Corresponding GHS Classification
Decreasing Toxicity (lab tests) ↓	Very Toxic	→	Category 1
		→	Category 2
	Toxic	→	Category 3
		→	Category 4
	Harmful	→	

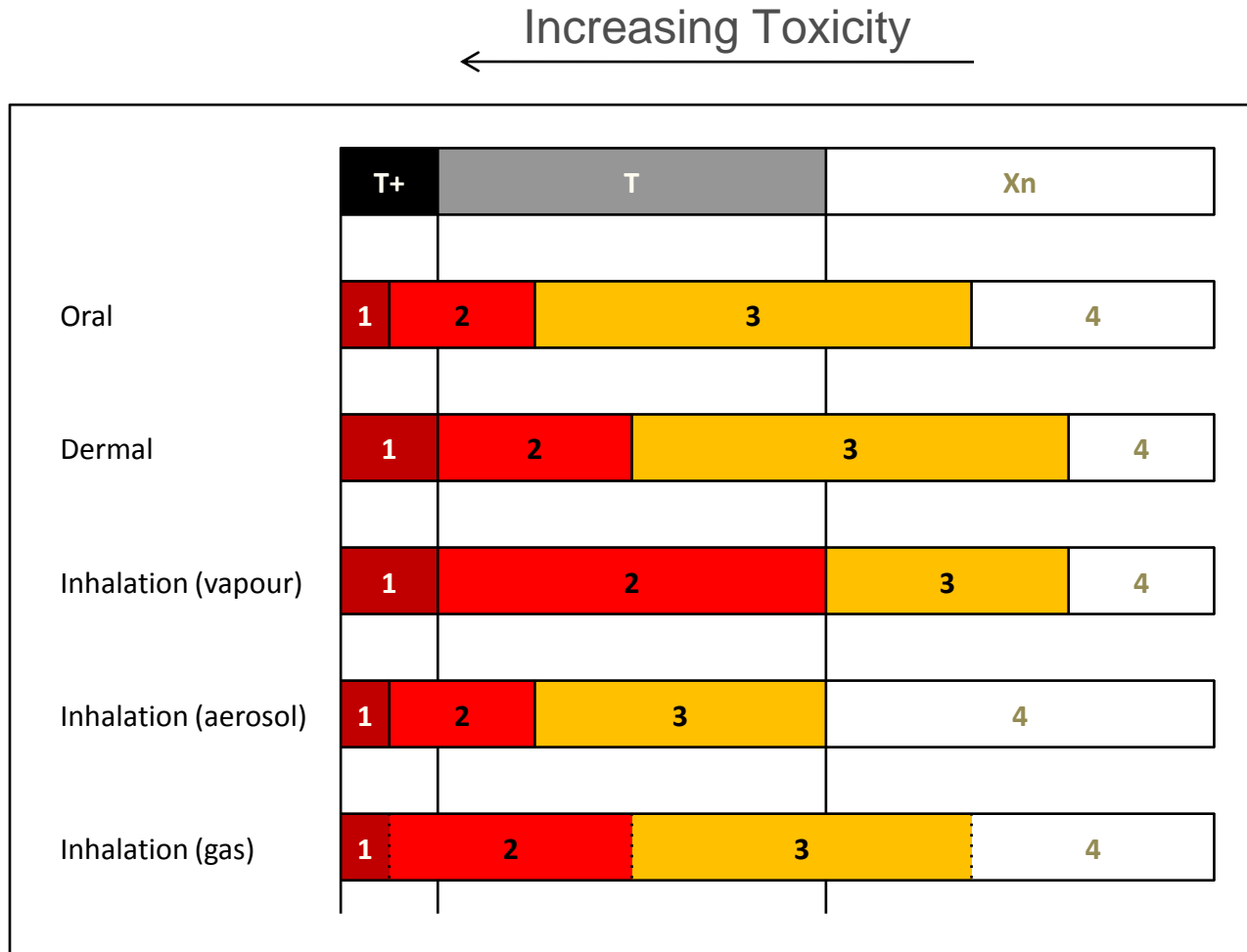
Acute Toxicity – Seveso II

- Schedule 1 of SI 74 of 2006 (Seveso II Regulations)

PART 2
Categories of substances and preparations not specifically named in Part 1

Column 1	Column 2	Column 3
Categories of dangerous substances	Qualifying quantity (tonnes) of dangerous substances as delivered in Article 3 (4), for the application of	
	Articles 6 and 7	Article 9
1. VERY TOXIC	5	20
2. TOXIC	50	200

Acute Toxicity – DSD to GHS



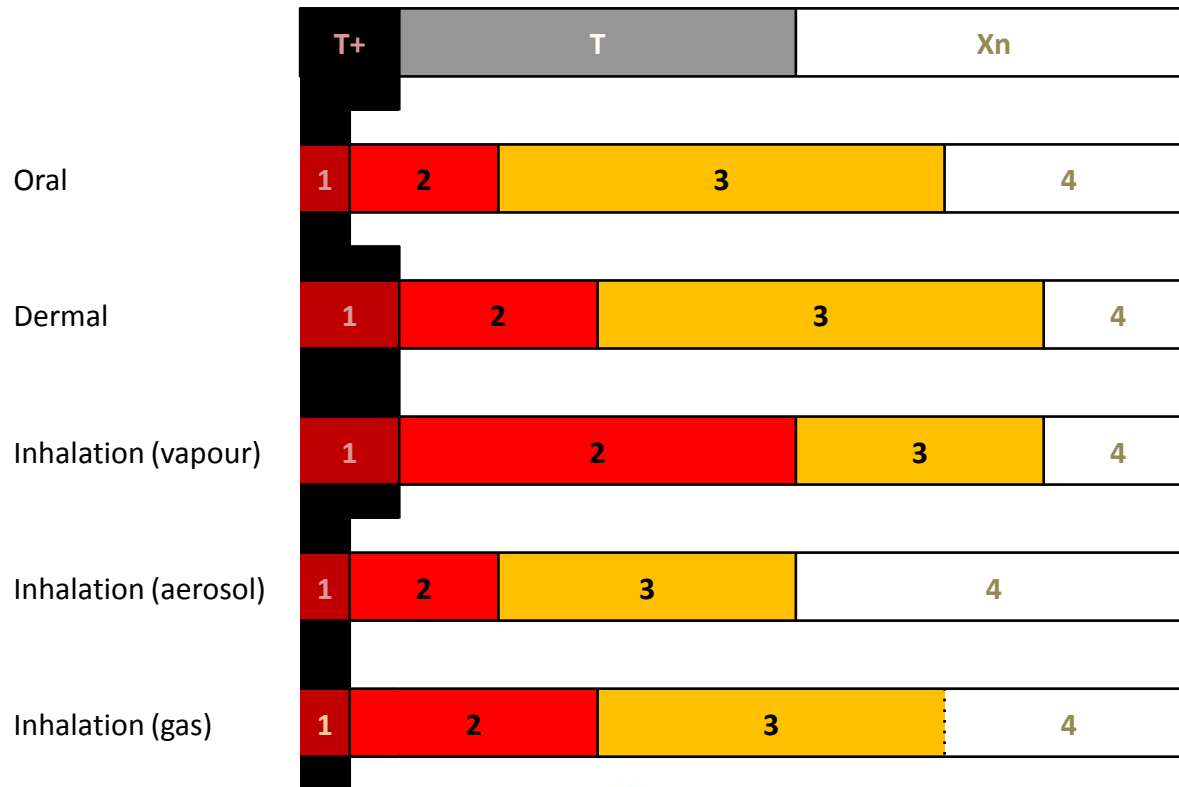
Acute Toxicity – Seveso III

- Annex I of Directive 2012/18/EU (Seveso III Directive)

Column 1	Column 2	Column 3
Hazard categories in accordance with Regulation (EC) No 1272/2008	Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	
	Lower-tier requirements	Upper-tier requirements
Section 'H' – HEALTH HAZARDS		
H1 ACUTE TOXIC Category 1, all exposure routes	5	20
H2 ACUTE TOXIC — Category 2, all exposure routes — Category 3, inhalation exposure route (see note 7)	50	200
H3 STOT SPECIFIC TARGET ORGAN TOXICITY – SINGLE EXPOSURE STOT SE Category 1	50	200

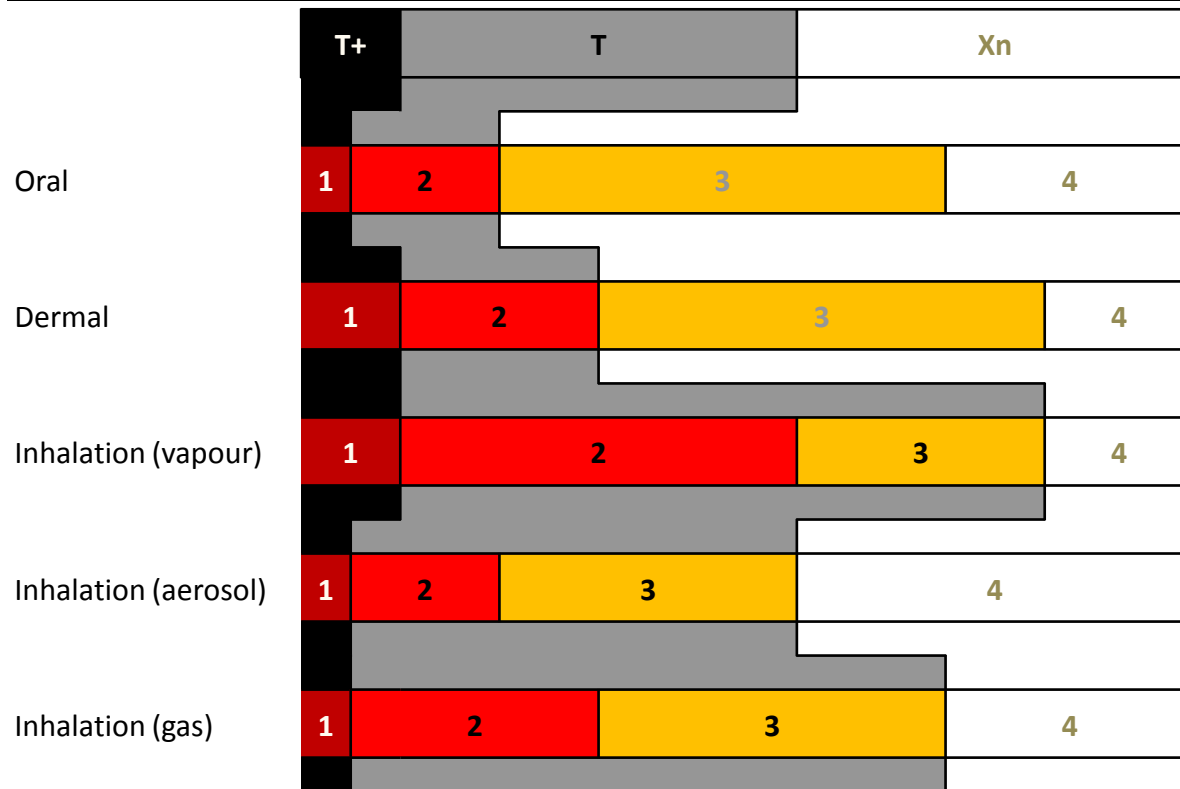
Acute Toxicity – Very Toxic materials (T+)

Dangerous Substances Classification	COMAH Thresholds		Corresponding GHS Classification	COMAH Thresholds	
	Lower	Upper		Lower	Upper
Very Toxic	5	20	H1 Acute Toxic – Category 1	5	20
			H2 Acute Toxic – Category 2	50	200



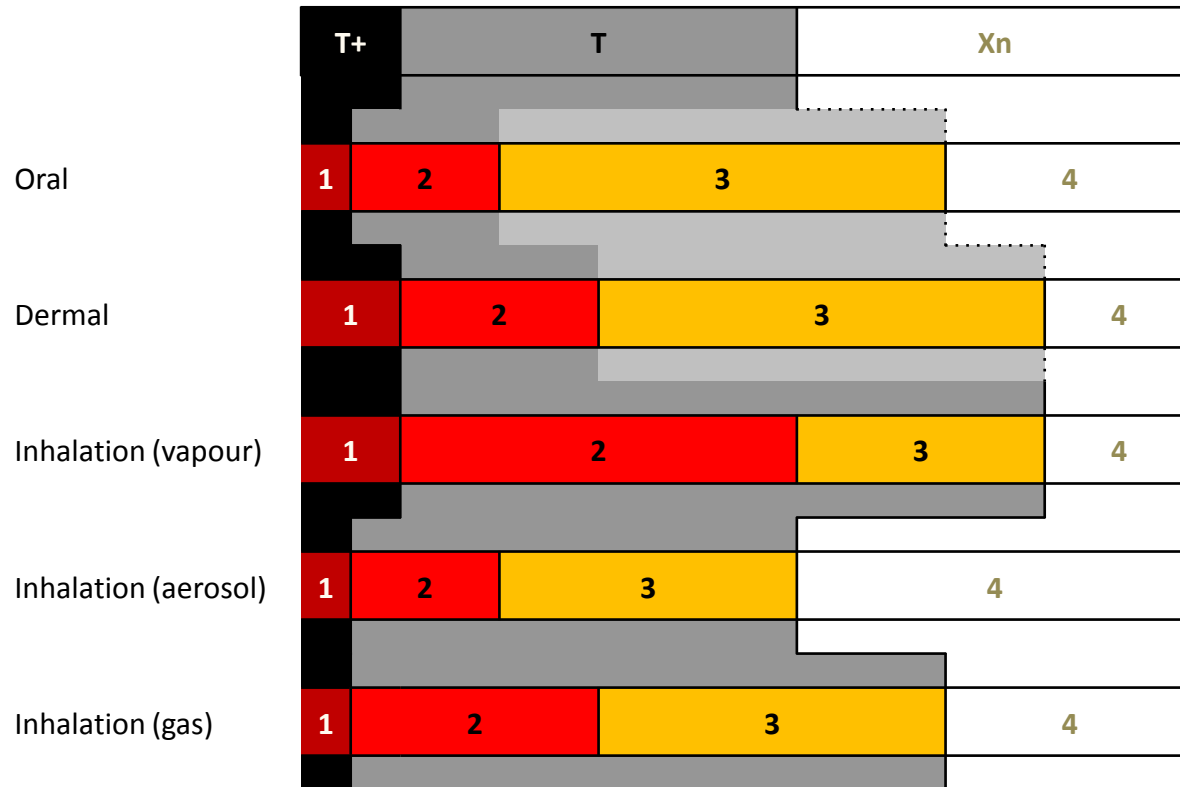
Acute Toxicity – Toxic materials (T)

Dangerous Substances Classification	COMAH Thresholds		Corresponding GHS Classification	COMAH Thresholds	
	Lower	Upper		Lower	Upper
Toxic	50	200	H2 Acute Toxic – Category 2 Category 3 (inh) or H3 – STOT Category 1	50	200
			Other Category 3 materials	n.a.	n.a.



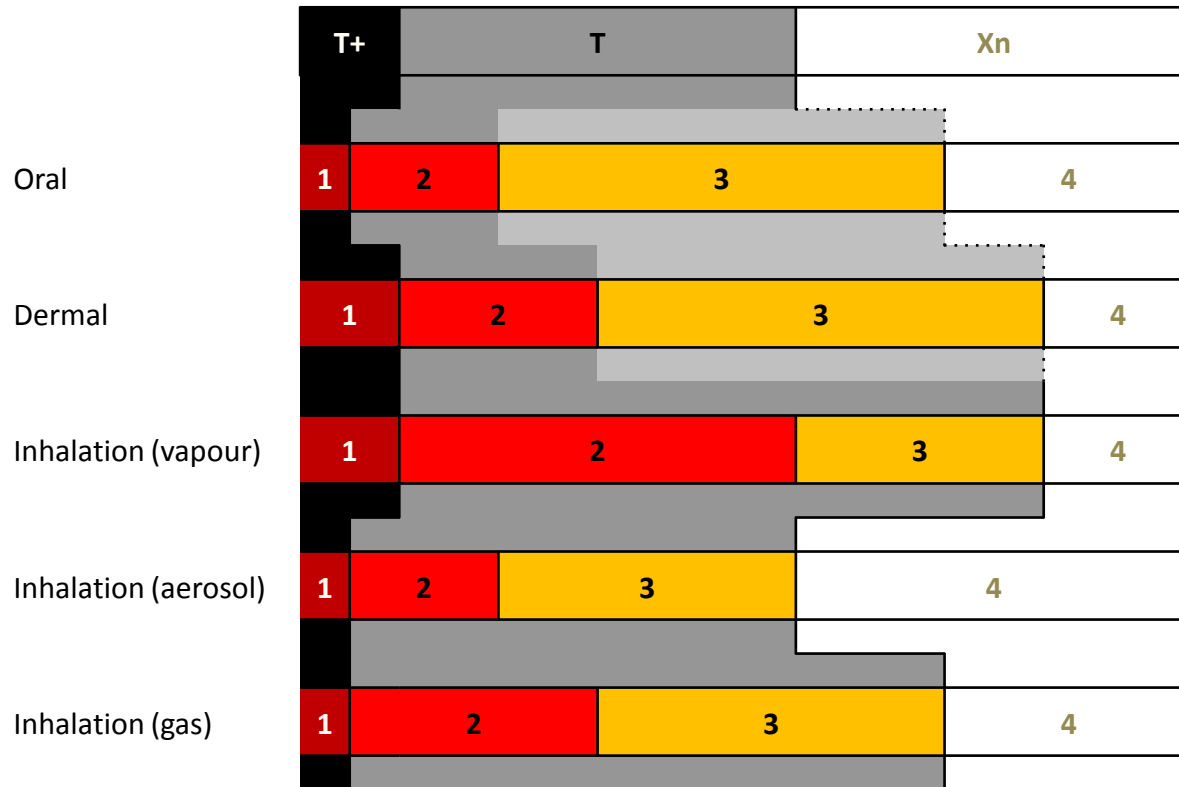
Acute Toxicity – Toxic materials (T)

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			Other Category 3 materials	n.a.	n.a.



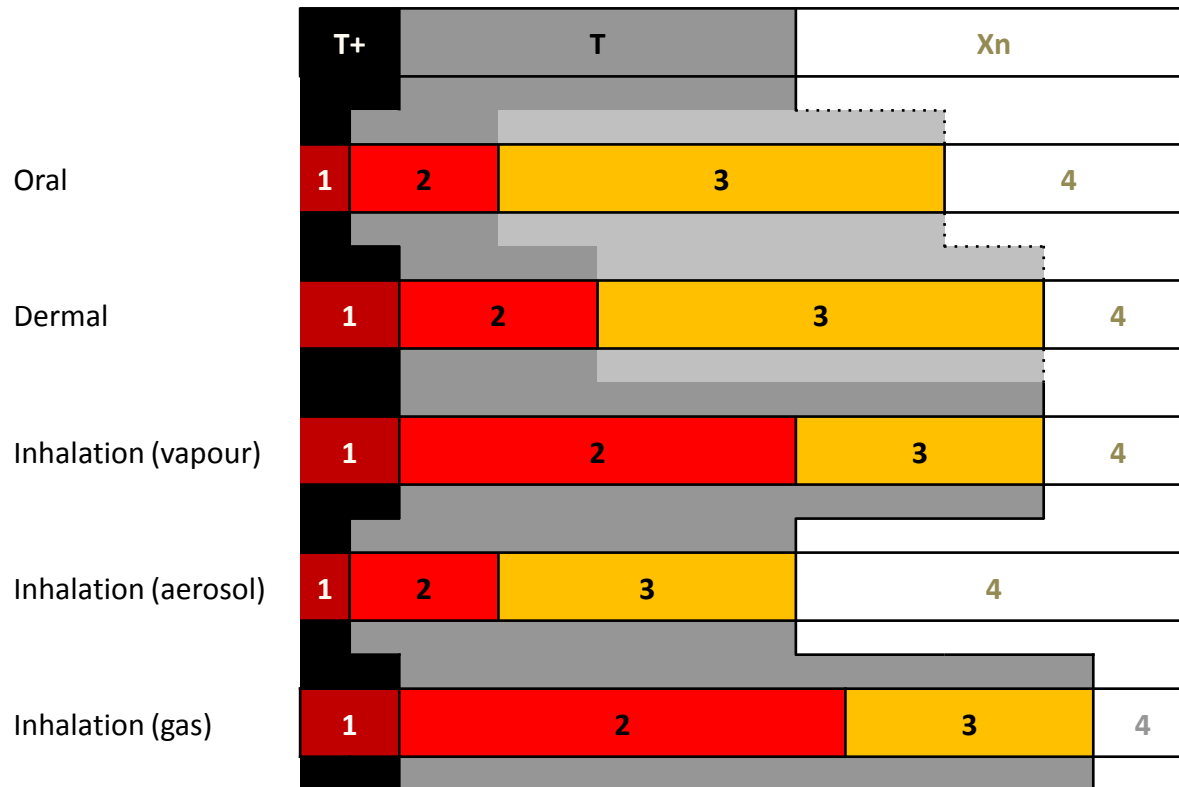
Acute Toxicity – Others

Dangerous Substances Classification	COMAH Thresholds		Corresponding GHS Classification	COMAH Thresholds	
	Lower	Upper		Lower	Upper
Harmful	n.a.	n.a.	Category 3 (inh) or H3 – STOT Category 1	50	200
			Other Category 3 materials	n.a.	n.a.
			Category 4 materials	n.a.	n.a.

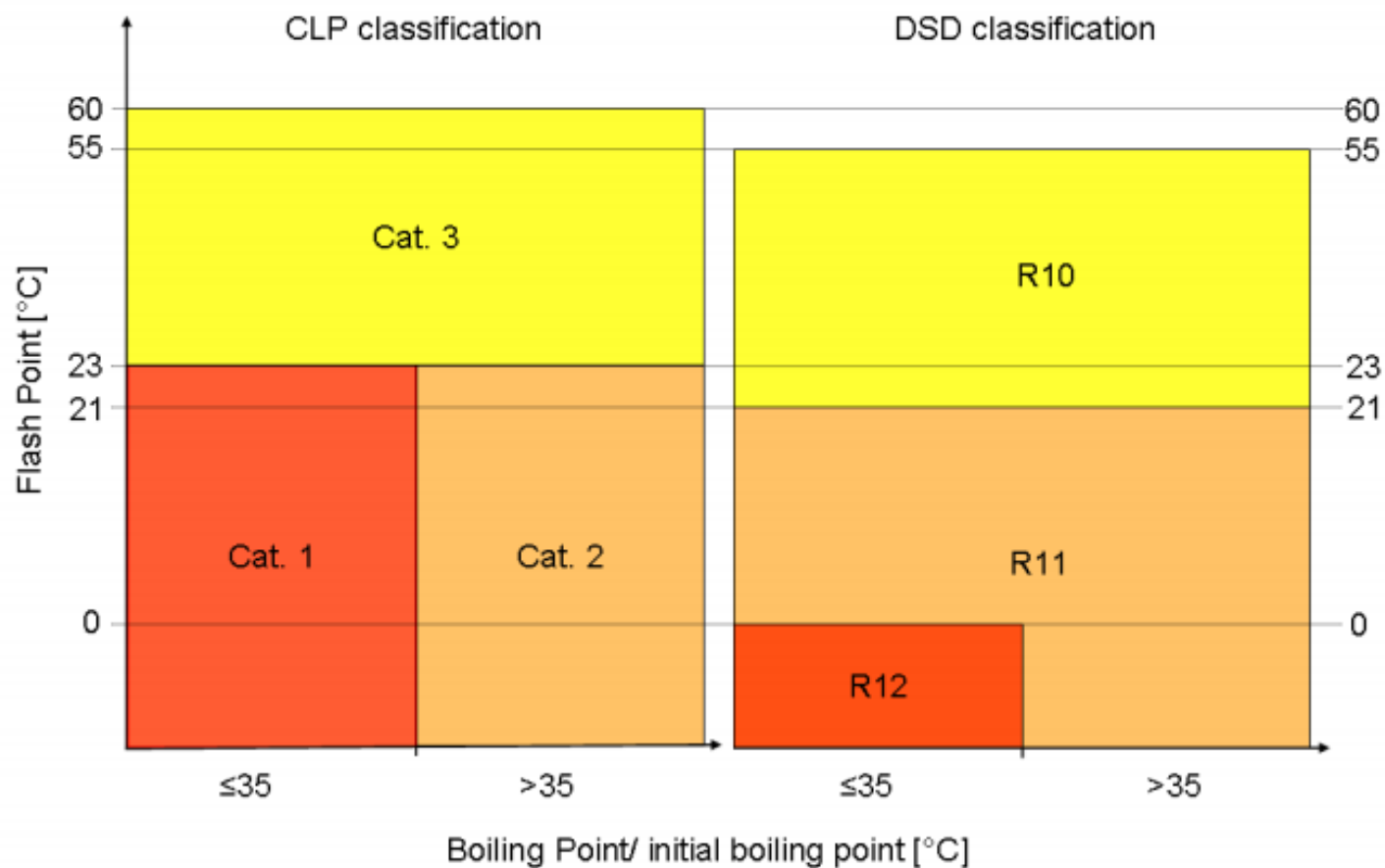


Acute Toxicity – Effect of MW for Gases

- Gas thresholds now expressed as ppmV – previously were mg/l







Flammability








Source: www.echa.europa.eu

Example – Hydrogen Fluoride

Dangerous Substances Directive		Globally Harmonised System	
<p>Very Toxic (T+)</p> <p>R26/27/28: Very toxic by inhalation, in contact with skin and if swallowed</p>		<p>Acute Toxic (Cat 2) H300: Fatal if swallowed</p> <p>Acute Toxic (Cat 1) H310: Fatal in contact with skin</p> <p>Acute Toxic (Cat 2) H330: Fatal if inhaled</p>	
<p>Corrosive (C)</p> <p>R35: Causes severe burns</p>		<p>Skin Corrosive (Cat 1A)</p> <p>H314: Causes severe skin burns and eye damage</p>	

Example – Methanol

Dangerous Substances Directive	Globally Harmonised System
R11: Highly Flammable 	H225: Highly Flammable Liquid and Vapour (Cat 2) 
Toxic (T) R23/24/25: Toxic by inhalation, in contact with skin and if swallowed R39/23/24/25: Danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed 	Acute Toxic (Cat 3) H301: Toxic if swallowed Acute Toxic (Cat 3) H311: Toxic in contact with skin Acute Toxic (Cat 3) H331: Toxic if inhaled 
	STOT SE 1 H370: Causes damage to organs 

Named Substances (some examples)

- HFO reclassified by Concawe (R52/53 to R50/53)
 - New Regulations will include this as a Named Substance
- Biofuels
 - Alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards
- Mixtures of Sodium Hypochlorite
 - If classed as Aquatic Acute Cat 1 solely due to presence of NaClO
- Others
 - BF_3 , Anhydrous NH_3 and H_2S – limited implications

Summary – Classification of Materials

- DSD and CLP systems are not aligned
 - Some T+ materials will have higher Qualifying Quantities: $\Sigma q/Q \downarrow$
 - Some Xn materials will become Seveso materials: $\Sigma q/Q \uparrow$
 - Some implications for certain Flammable materials: $\Sigma q/Q \uparrow$
- Addition rule still used for inventory calculation
- Different types of establishment under legislation
 - New: Newly constructed or due to changes at site
 - Existing: Qualifies under Seveso II and Seveso III without changing status
 - Other

Derogations / Safeguards

- Scope for materials to be excluded regardless of Hazard Classification
 - If it is **impossible in practice** for a particular dangerous substance to cause a release of matter or energy that could create a major accident under normal and abnormal conditions which can reasonably be foreseen
- Industry can make the case – decision made by Commission
- Scope also for additional materials to be included
 - Where they would not otherwise qualify on the basis of hazardous properties
- Cater for future changes in material classifications

Information to the Public

- Changes to Seveso Directive to reflect Aarhus Convention
 - Provision of Information to the Public
 - Public participation in decision-making
 - Access to justice on environmental matters
 - Lower and Upper Tier establishments and to the authorities (Article 14)
- Additional requirements for Upper Tier establishments
 - Information on Safety Report
 - To be made available electronically

Information to the Public

- Requirements for all operators unless Article 22 applies
- Provisions for Confidentiality
 - Commercial sensitivity
 - Security considerations
- Not yet clear how much information or what format
 - Information on Safety Report – how much detail; template?
 - Available electronically – website?



Inspections by HSA

- Flexible system based on hazard/risk
- Upper Tier – annual (or more frequent)
- Lower Tier – three yearly (or more frequent)
 - Frequency can be changed if CA draws up inspection programme based on systematic appraisal of the MAH at the site concerned
- Cross-reference with other inspections under EU legislation
- Operators must include up-to-date information on HSA inspections as part of their online information to public



Ongoing Compliance

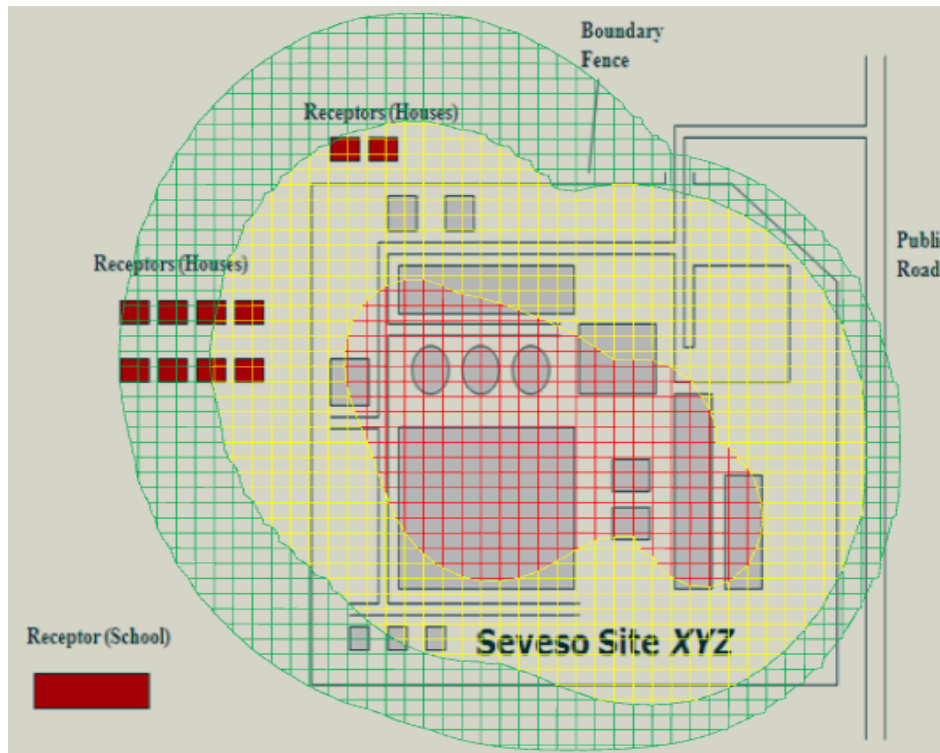
- Notifications
 - Inventory calculation ($\Sigma q/Q$) will need to be updated
 - Review information on neighbouring establishments
- MAPP / SMS
 - Not significant; should be updated to reference the new legislation
 - Specific procedures may need to be updated to reflect changes
- HAZID and Safety Report
 - Case-by-case basis – how significant are the changes?
 - Subject to periodic review in any case

Ongoing Compliance

- Internal Emergency Plan
 - Should reflect the hazards on site (significant changes to HAZID?)
- External Emergency Plan
 - For new plans – public concerned should have opportunity to comment
 - Public concerned – not just those within the Specified Area

Land Use Planning

- Robust system already in place (Individual & Societal Risk)



	Inner Zone (Zone 1)	Middle Zone (Zone 2)	Outer Zone (Zone 3)
Level 1	✓	✓	✓
Level 2	✗	✓	✓
Level 3	✗	✗	✓
Level 4	✗	✗	✗

(From HSA LUP guidance document)

Conclusions

- Similar to Seveso II (not as significant as Seveso I → II)
- Status of some sites may change as a result of new system
 - Changes in materials' classification (ongoing)
 - Efforts at EU level to moderate Seveso implications
- Potential Areas of Interest in coming years
 - $\Sigma q/Q$ calculation (particularly for those close to existing thresholds)
 - Information to Public (CA to develop guidance or templates?)
 - Inspections

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Implications for Irish Industry

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