



**EXPLANATORY NOTE & ANALYSIS**

**for**

**DRAFT**

**“2018 Code of Practice  
for the  
Chemical Agent Regulations”**

## TABLE OF CONTENTS

	Page
Foreword	3
1.0 Background and Context	3
2.0 Objectives of the Code of Practice	5
3.0 Options	5
4.0 Costs, Benefits and Impacts	4
4.1 General Costs	6
4.2 Direct Compliance Costs	6
4.3 Benefits Of Each Option	6
4.4 Other Impacts	6
(a) Impacts on National Competitiveness	6
(b) Impacts on Socially Excluded or Vulnerable Groups	6
(c) Human Health and Environmental Issues	6
(d) Impacts on Consumers and Competition	7
(e) Impacts on Rights of Citizens	7
(f) Compliance Burdens	7
4.5 Preferred Option	7
5.0 Consultation	7
6.0 Enforcement and Compliance	7
7.0 Review	7
<b>Appendix 1 – Tables 1-3</b>	<b>8</b>

## **Foreword**

The Health and Safety Authority has prepared this Detailed Explanatory Note & Analysis document to support the proposed draft “2018 Code of Practice for the Chemical Agent Regulations”.

The ‘Chemical Agent Regulations’ means the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), as amended by S.I. No. 623/2015 - Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations 2015.

This Explanatory Memorandum outlines the options, cost, benefits, impacts and the consultation requirements and the arrangements in publishing this updated Code of Practice.

## **1.0 Background and Context**

Occupational exposure limit values (OELVs) provide a basis for ensuring that exposure to airborne contaminants in the workplace are controlled in such a way as to prevent adverse health effects.

The purpose of the 2018 Code of Practice is to provide practical guidance as to the observance of Regulations 4(1)(e), 4(5)(d), 6(1)(c), (d) and (e) and 9(1)(b) of the Chemical Agent Regulations, in relation to occupational exposure limit values (OELVs) for a number of chemical agents as listed in Schedule 1 to the Code, having regard to the provisions of the Safety, Health and Welfare at Work Act 2005.

The 2018 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 **(as amended)**:

- updates and replaces the “2016 Code of Practice for the Chemical Agents Regulations”, based on the latest available relevant scientific information, and
- fulfils the commitment as stated in the foreword of the 2016 Code of Practice to update the Code of Practice periodically, where appropriate.

The draft 2018 Code of Practice includes the following updates /amendments:

- Schedule 1 has been updated to take account of Schedule 2 to the 2016 Code of Practice, which listed intended changes to introduce a new OELV or to change an existing OELV.
- Schedule 1 has been updated to adopt new Indicative OELVs from EU Commission Directive (4<sup>th</sup> list of IOELVs) [2017/164/EU](#). (See Appendix 1, Table 1). EU Directive 2017/164 has a transposition date of 17 August 2018.
- Schedule 1 has been updated to include new Binding OELVs following an amendment to the Carcinogens and Mutagens Directive (CMD) by EU Directive

[2017/2398](#) (Wave 1). (See Appendix 1, Table 2). EU Directive 2017/2398 has a transposition date of January 2020 but this draft 2018 Code of Practice is proposing to implement the Binding OELVs upon publication of the 2018 Code of Practice on or before the by 17 August 2018.

An analysis of the new binding limit values compared to current limit values identified the following substances where the percentage reduction in the limit values ranged from 50-80% - Chromium VI compounds, Refractory ceramic fibre; Vinyl Chloride Monomer **and** Hardwood dusts.

Comments will be particularly sought during public/ industry consultation on these substances with the most significant percentage reductions with regard to the proposed earlier implementation timeframe i.e. August 2018.

- All updates included in Schedule 1 of the 2018 Code of Practice are in bold for ease of reference
- Schedule 2 has been updated to include possible changes to current OELV values and new entrants for the next iteration of the Code of Practice
- Schedule 3 - the Chemical Abstracts Service (CAS) Numbers Index. It is proposed to remove Schedule 3 as CAS Numbers and EC numbers for chemical substances can be obtained from a number of online sources such as the [CAS registry](#) and the [ECHA Dissemination portal](#)
- Identified errata from the 2016 Code of Practice have been addressed. (See Appendix 1, Table 3).

Both EU Directive 2017/164/EU and EU Directive 2017/2398 provide for transitional arrangements for particular substances, processes and sectors. These are set out below for ease of reference (see also Appendix 1, Tables 1 and 2) and the Health and Safety Authority is proposing in its draft 2018 Code of Practice for the Chemical Agent Regulations to adopt these transitional arrangements for the relevant substances, processes and sectors.

Directive 2017/164/EU	<b><i>Underground mining and tunnelling sector</i></b> It is proposed to maintain current limit values for Nitrogen Dioxide and Nitrogen Monoxide until 21 <sup>st</sup> August 2023 for this sector but adopt limit values for Carbon Monoxide from Directive 2017/164/EU (current limit values for Carbon Monoxide are similar).
Directive <a href="#">2017/2398</a>	<b><i>Chromium VI compounds</i></b>

	a) 0.010mg/m <sup>3</sup> until January 2025 then reducing to 0.005mg/m <sup>3</sup> ; b) 0.025mg/m <sup>3</sup> until January 2025 for welding/ processes that generate fume then reducing to 0.005mg/m <sup>3</sup>
	Hardwood dusts a) 3mg/m <sup>3</sup> (l) until January 2023 then reducing to 2mg/m <sup>3</sup> (l) thereafter

## 2.0 Objectives of the Code of Practice

Overall objective:

To publish an up-dated Code of Practice to provide a comprehensive schedule of OELVs based on current scientific knowledge for employers to ensure that necessary protective measures are in place to secure the safety, health and welfare of employees.

Immediate objectives:

- ❖ To update the 2016 Code of Practice based on the latest available relevant scientific information,
- ❖ To fulfil the commitment as stated in the foreword of the 2016 Code of Practice to update the document.
- ❖ To ensure transposition dates for relevant EU Directives are complied with.

## 3.0 Options

### Option 1

**Do Nothing:** By not updating the Code of Practice, the 2016 Code of Practice will contain out of date OELVs for some chemical agents and our transposition requirements for the 4<sup>th</sup> IOELV list and CMD amendments will not be met.

### Option 2

**Publish the Code of Practice:**

By publishing an updated Code of Practice the 2018 Code of Practice will contain the most up to date OELVs for chemical agents, based on the latest available relevant scientific information and comply with transposition requirements for member states.

## 4.0 Costs, Benefits and Impacts

#### **4.1 General Costs**

The Code of Practice will be published on the Health and Safety Authority's website. Combined publication costs to the Authority are estimated not to exceed €2,000. A minimum number of copies will be printed, as most customers consult the document on the Authority's website.

Extra enforcement costs are not anticipated. No additional staffing or capital investment is envisaged as a result of the operation of the new Code of Practice.

#### **4.2 Direct Compliance Costs**

Industries using chemical agents listed in bold in Schedule 1 (proposed change of occupational exposure limit values) may possibly, in some cases, be obliged to enhance control measures to comply with the advice given in the Code of Practice. Improvement in containment, engineering controls or personal protective equipment (PPE) costs may be necessary for some industries to satisfy some requirements of the Code.

#### **4.3 Benefits of Each Option**

**Option 1: Do Nothing:**-This option would be regarded as having no benefit to any of the parties involved as it implies continuing to use outdated occupational exposure limits (OELVs) and will not fully support the need to protect the health of employees.

**Option 2: Publish the Code of Practice:** By updating the Code of Practice, the 2018 Code of Practice will contain the most up to date OELVs for chemical agents.

#### **4.4 Other Impacts**

##### **(a) Impacts on National Competitiveness**

The updated elements of the code of practice are based on international and European standards and are not expected to have a significant adverse effect on national stakeholders.

##### **(b) Impacts on Socially Excluded or Vulnerable Groups**

No adverse impact.

##### **(c) Human Health and Environmental Issues**

No adverse human health or environmental issues.

**(d) Impacts upon Consumers and Competition**

No impacts on consumers and competition.

**(e) Impacts on the Rights of Citizens**

No impact on the rights of citizens.

**(f) Compliance Burdens**

Compliance costs, in terms of improvement of containment, additional engineering controls or personal protective equipment (PPE), should not be significant from the point of view of their proportionality and distribution. There should be no increased compliance costs for the Authority.

**4.5 Preferred Option**

**Option 2 – To publish an updated replacement Code of Practice** – will produce a cohesive update of all national occupational exposure limit values, readily accessible in one document and without excessive cost.

**5.0 Consultation**

Public consultation in the form of publication of a draft Code of Practice on the Authority's website, seeking submissions, as well as direct contact with key stakeholders will be undertaken in line with the Authority's standard practice for public consultation, in accordance with Section 60(2) of the Safety, Health and Welfare at Work Act 2005.

**6.0 Enforcement and Compliance**

The Health and Safety Authority will continue to enforce the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), as amended, on which the draft Code of Practice gives guidance. The use of the Code of Practice may be assessed during inspections of workplaces where chemical agents mentioned in the Code of Practice are used.

**7.0 Review**

It is the Authority's intention that the proposed Code of Practice will be reviewed and updated periodically to reflect current knowledge concerning the health hazards of chemical agents.

## APPENDIX 1

**Table 1** – Indicative Occupational Exposure Limit Values (IOELVs) being introduced from EU Directive 2017/164/EU

Substance	CAS Number	IOELV a) 8 hr OELV b) STEL c) Skin notation	Existing OELV & Notations a) 8 hr OELV b) STEL c) Skin notation	Proposed Change in 2018 CoP
Manganese and inorganic manganese compounds (as manganese)	-	a) a) 0.2mg/m <sup>3</sup> inhalable fraction b) 0.05mg/m <sup>3</sup> respirable fraction c) none	a) a) 0.2mg/m <sup>3</sup> b) b) none c) c) none	Adopt IOELV 8 hr OELV, and include STEL
Glycerol trinitrate	55-63-0	a) 0.095mg/m <sup>3</sup> /0.01ppm b) 0.19mg/m <sup>3</sup> /0.02ppm c) Skin	a) 0.5mg/m <sup>3</sup> /0.05ppm b) None c) Skin	Adopt IOELV 8hr OELV, reduce existing OELV and include STEL
Carbon Tetrachloride; tetrachloromethane	56-23-5	a) 6.4mg/m <sup>3</sup> /1ppm b) 32mg/m <sup>3</sup> /5ppm c) Skin	a) 12.6mg/m <sup>3</sup> /2ppm b) None c) Skin	Adopt IOELV 8hr OELV, reduce existing OELV and include STEL
Amitrole	61-82-5	a) 0.2mg/m <sup>3</sup> b) None c) None	a) 0.2mg/m <sup>3</sup> b) None c) None	IOELV indicated in notes column no other changes
Acetic Acid	64-19-7	a) 25mg/m <sup>3</sup> /10ppm b) 50mg/m <sup>3</sup> /20ppm c) None	a) 25mg/m <sup>3</sup> /10ppm b) 37mg/m <sup>3</sup> /15ppm c) None	Adopt IOELV STEL value, no change to 8hr OELV as



Detailed Explanatory Note & Analysis: Draft 2018 Code Of Practice for the Chemical Agent Regulations

				already matching
Hydrogen cyanide (as cyanide)	74-90-8	a) 1mg/m <sup>3</sup> /0.9ppm b) 5mg/m <sup>3</sup> /4.5ppm c) Skin	a) None b) 10mg/m <sup>3</sup> /10ppm c) Skin	Adopt IOELV 8hr OELV, reduce existing STEL value
Methylene Chloride; Dichloromethane	75-09-2	a) 353mg/m <sup>3</sup> /100ppm b) 706mg/m <sup>3</sup> /200ppm c) Skin	a) 174mg/m <sup>3</sup> /50ppm b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV, include STEL and skin notation
Vinylidene chloride; 1,1-Dichloroethylene	75-35-4	a) 8mg/m <sup>3</sup> /2ppm b) 20mg/m <sup>3</sup> /5ppm c) None	a) 20mg/m <sup>3</sup> /5ppm b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV, include STEL value
Tetraethyl orthosilicate	78-10-4	a) 44mg/m <sup>3</sup> /5ppm b) None c) None	a) 85mg/m <sup>3</sup> /10ppm b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV
Acrylic Acid; Prop-2-enoic acid	79-10-7	a) 29mg/m <sup>3</sup> /10ppm b) 59mg/m <sup>3</sup> /20ppm STEL in relation to a 1 minute reference period c) None	a) 6mg/m <sup>3</sup> /2ppm b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV, introduce STEL with note that it is for a 1minute reference period
Nitroethane	79-24-3	a) 62mg/m <sup>3</sup> /20ppm b) 312mg/m <sup>3</sup> /100ppm c) Skin	a) 310mg/m <sup>3</sup> /100ppm b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV, include STEL and Skin notation

Detailed Explanatory Note & Analysis: Draft 2018 Code Of Practice for the Chemical Agent Regulations

Bisphenol A; 4,4'-Isopropylidenediphenol (inhalable dust)	80-05-7	a) 2mg/m <sup>3</sup> b) None c) None	a) 10mg/m <sup>3</sup> b) None c) None	Adopt IOELV 8hr OELV, reduce existing OELV
Diphenyl Ether	101-84-8	a) 7mg/m <sup>3</sup> /1ppm b) 14mg/m <sup>3</sup> /2ppm c) None	a) 7mg/m <sup>3</sup> /1ppm b) None c) None	IOELV 8hr OELV no change, include STEL
2-ethylhexan-1-ol	104-76-7	a) 5.4mg/m <sup>3</sup> /1ppm b) None c) None	a) None b) None c) None	New Entrant- Adopt IOELV 8hr OELV
1,4-Dichlorobenzene; p-Di-chlorobenzene	106-46-7	a) 12mg/m <sup>3</sup> /2ppm b) 60mg/m <sup>3</sup> /10ppm c) Skin	a) 122mg/m <sup>3</sup> /20ppm b) 306mg/m <sup>3</sup> /50ppm c) None	Adopt IOELV 8hr OELV, reduce existing OELV, reduce existing STEL, include Skin notation
Acrolein; Acrylaldehyde; Prop-en-al	107-02-8	a) 0.05mg/m <sup>3</sup> /0.02ppm b) 0.12mg/m <sup>3</sup> /0.05ppm c) None	a) 0.25mg/m <sup>3</sup> /0.1ppm b) 0.8mg/m <sup>3</sup> /0.3ppm c) None	Adopt IOELV 8hr OELV, reduce existing OELV and STEL
Methyl Formate	107-31-3	a) 125mg/m <sup>3</sup> /50ppm b) 250mg/m <sup>3</sup> /100ppm c) Skin	a) 250mg/m <sup>3</sup> /100ppm b) 375mg/m <sup>3</sup> /150ppm c) Skin	Adopt IOELV 8hr OELV, reduce existing OELV and STEL
But-2-yne-1,4-diol	110-65-6	a) 0.5mg/m <sup>3</sup> b) None c) None	a) None b) None c) None	New Entrant- Adopt IOELV 8hr OELV
Tetrachloroethylene	127-18-4	a) 138mg/m <sup>3</sup> /20ppm b) 275mg/m <sup>3</sup> /40ppm c) Skin	a) 170mg/m <sup>3</sup> /25ppm b) 678mg/m <sup>3</sup> /100ppm c) None	Adopt IOELV 8hr, increase existing OELV and reduce STEL, include Skin

Detailed Explanatory Note & Analysis: Draft 2018 Code Of Practice for the Chemical Agent Regulations

				notation
Ethyl Acetate	141-78-6	a) 734mg/m <sup>3</sup> /200ppm b) 1468mg/m <sup>3</sup> /400ppm c) None	a) 200ppm b) 400ppm c) None	OELV & STEL already match, include IOELV in notes column
Sodium Cyanide (as cyanide)	141-33-9	a) 1mg/m <sup>3</sup> b) 5mg/m <sup>3</sup> c) Skin	a) None b) None c) None	New Entrant-adopt IOELV 8hr OELV & STEL
Potassium Cyanide (as cyanide)	151-50-8	a) 1mg/m <sup>3</sup> b) 5mg/m <sup>3</sup> c) Skin	a) None b) None c) None	New Entrant-adopt IOELV 8hr OELV & STEL
Diacetyl; Butanedione	431-03-8	a) 0.07mg/m <sup>3</sup> /0.02ppm b) 0.36mg/m <sup>3</sup> /0.1ppm c) None	a) 0.01ppm (Proposed) b) 0.02ppm (Proposed) c) None	Proposed in Schedule 2 of 2016 COP; New Entrant to Schedule 1-adopt IOELV 8hr OELV and STEL
Carbon Monoxide	630-08-0	a) 23mg/m <sup>3</sup> /20ppm b) 117mg/m <sup>3</sup> /100ppm c) None	a) 23mg/m <sup>3</sup> /20ppm b) 115mg/m <sup>3</sup> /100ppm c) None	Adopt IOELV values-no change in 8hr OELV, slight change in STEL  <b>Derogation for Underground mining and tunnelling Sector until 21 August 2023 NOT REQUIRED as limit values</b>

Detailed Explanatory Note & Analysis: Draft 2018 Code Of Practice for the Chemical Agent Regulations

				<b>similar</b>
Calcium Dihydroxide	1305-62-0	a) 1mg/m <sup>3</sup> (R) b) 4mg/m <sup>3</sup> (R) c) None	a) 5mg/m <sup>3</sup> b) None c) None	Adopt IOELV 8hr OELV & STEL Respirable dust values
Calcium Oxide	1305-78-8	a) 1mg/m <sup>3</sup> (R) b) 4mg/m <sup>3</sup> (R) c) None	a) 2mg/m <sup>3</sup> b) None c) None	Adopt IOELV 8hr OELV & STEL Respirable dust values
Sulphur Dioxide	7446-09-5	a) 1.3mg/m <sup>3</sup> /0.5ppm b) 2.7mg/m <sup>3</sup> /1ppm c) None	a) 0.5ppm (removal proposed) b) 0.25ppm (proposed) c) None	Adopt IOELV 8hr OELV & STEL values
Lithium Hydride	7580-67-8	a) None b) 0.02mg/m <sup>3</sup> (I) c) None	a) 0.025mg/m <sup>3</sup> b) None c) None	Adopt IOELV STEL value, remove old IOELV 8hr OELV
Nitrogen Monoxide	10102-43-9	a) 2.5mg/m <sup>3</sup> /2ppm b) None c) None	a) 30mg/m <sup>3</sup> /25ppm b) 45mg/m <sup>3</sup> /35ppm c) None	Adopt IOELV 8hr OELV, reduce existing OELV remove STEL  <b>Derogation for Underground mining and tunnelling Sector until 21 August 2023 - 2016 COP limit values apply during transition period.</b>
Nitrogen dioxide	10102-44-0	a) 0.96mg/m <sup>3</sup> /0.5ppm	a) 5mg/m <sup>3</sup> /3ppm	Adopt IOELV 8hr

		b) 1.91mg/m <sup>3</sup> /1ppm c) None	b) 9mg/m <sup>3</sup> /5ppm c) None	OELV, reduce existing OELV and STEL  <b>Derogation for Underground mining and tunnelling Sector until 21 August 2023. 2016 COP limit values apply during transition period</b>
Terphenyl, hydrogenated	61788-32-7	a) 19mg/m <sup>3</sup> /2ppm b) 48mg/m <sup>3</sup> /5ppm c) None	a) 4.9mg/m <sup>3</sup> /0.5ppm b) None c) None	Adopt IOELV 8hr OELV & STEL

**Table 2** – Binding Occupational Exposure Limit Values (IOELVs) being introduced from EU Directive 2017/2398

Substance	CAS Number	BOELV d) 8 hr OELV e) STEL f) Skin notation	Existing OELV & Notations d) 8 hr OELV e) STEL f) Skin notation	Proposed Change in 2018 CoP
Hardwood Dusts	-	a) 3mg/m <sup>3</sup> (l) <b>until Jan 2023 then reducing to 2mg/m<sup>3</sup>(l) thereafter</b> b) None c) None	a) 5mg/m <sup>3</sup> b) None c) None	Adopt BOELV on a transitional basis, decrease 8hr OELV  <b>60% reduction.</b>
Chromium VI compounds which are carcinogens (as chromium)	-	a) 0.010mg/m <sup>3</sup> <b>until Jan 2025 then reducing to 0.005mg/m<sup>3</sup>; 0.025mg/m<sup>3</sup> until Jan 2025 for welding/ processes that generate fume</b> b) None c) None	a) 0.05mg/m <sup>3</sup> [water-soluble]; 0.01mg/m <sup>3</sup> [Insoluble] b) None c) None	Adopt BOELV, reduction in 8hr OELV on a transitional basis  <b>50-80% reduction</b>
Refractory Ceramic Fibres	-	a) 0.3 fibres/ml b) None c) None	a) 1 fibre/ml b) None c) None	Adopt BOELV, reduce 8hr OELV  <b>70% reduction</b>
Respirable Crystalline Silica Dust	-	a) 0.1mg/m <sup>3</sup> b) None c) None	a) 0.1mg/m <sup>3</sup> b) None c) None	Adopt BOELV, no change required
Benzene	71-43-2	a) 3.25mg/m <sup>3</sup> /1ppm b) None c) Skin	a) 3mg/m <sup>3</sup> /1ppm b) None c) Skin	Adopt BOELV, minor change to 8hr OELV
Vinyl Chloride Monomer	75-01-4	a) 2.6mg/m <sup>3</sup> /1ppm b) None	a) 7.77mg/m <sup>3</sup> /3ppm b) None	Adopt BOELV, reduce 8hr OELV

Detailed Explanatory Note & Analysis: Draft 2018 Code Of Practice for the Chemical Agent Regulations

		c) None	c) None	<b>66% reduction</b>
Ethylene Oxide	75-21-8	a) 1.8mg/m <sup>3</sup> /1ppm b) None c) Skin	a) 1ppm proposed in 2016 b) None c) None	Adopt BOELV and skin notation no change required to 8hr OELV
1,2-Epoxypropane	75-56-9	a) 2.4mg/m <sup>3</sup> /1ppm b) None c) None	a) 2ppm proposed in 2016 b) None c) None	Adopt BOELV, reduce 8hr OELV
Acrylamide	79-06-1	a) 0.1mg/m <sup>3</sup> b) None c) Skin	a) 0.03mg/m <sup>3</sup> b) None c) Skin	Adopt BOELV, slight increase in 8hr OELV
2-Nitropropane	79-46-9	a) 18mg/m <sup>3</sup> /5ppm b) None c) None	a) 18mg/m <sup>3</sup> /5ppm b) None c) None	Adopt BOELV notation, no change to 8hr OELV
o-Toluidine	95-53-4	a) 0.5mg/m <sup>3</sup> /0.1ppm b) None c) Skin	a) 0.9mg/m <sup>3</sup> /0.2ppm b) None c) Skin	Adopt BOELV, reduce 8hr OELV
1,3-Butadiene	106-99-0	a) 2.2mg/m <sup>3</sup> /1ppm b) None c) None	a) 2.2mg/m <sup>3</sup> /1ppm b) None c) None	Adopt BOELV notation, no change to 8hr OELV 44% reduction
Hydrazine	302-01-2	a) 0.013mg/m <sup>3</sup> /0.01ppm b) None c) Skin	a) 0.01mg/m <sup>3</sup> /0.01ppm b) None c) Skin	Adopt BOELV notation, minor change to 8hr OELV
Bromoethylene	593-60-2	a) 4.4mg/m <sup>3</sup> /1ppm b) None c) None	a) 2.2mg/m <sup>3</sup> /0.5ppm b) None c) None	Adopt BOELV, increase in 8hr OELV

**Table 3** – List or errata from the 2016 Code of Practice to be amended.

Aluminium Oxides	1344-28-1	Values moved to mg/m <sup>3</sup> column from ppm column		
Butenes, all isomers	106-98-9 107-01-7 115-11-7 590-18-1 624-64-6 25167-67-3	CAS number amended from 590-18-4 to 590-18-1		

DRAFT