



Step B. Check existing lists of GES

- Aim of the GES: making ES work more manageable!!
- Check if there is an 'existing' GES that may be a starting point!
- A GES will include a description of the process/PROC, OC and details of the potential routes of exposure associated with the generic process/PROC. The draft GES will also include quantitative **estimates** of exposure and propose RMMs.

Step B. Check existing list of GES for corresponding scenarios

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26 March 2009



Info → First draft GES

- Consortium secretariat: central point for all questionnaires
 - Removing ID of companies and replace by Company code
 - Consortium secretariat or Consultants
 - To identify similar processes across sectors
- ↓
- Prepare first draft GES using existing list of GES
 - Eurometaux list: metal specific
 - RIP (Information Requirements and Chemical Safety Assessment -Part D) not metal specific
 - CEFIC library of GES

↪ No need to invent GES.

↪ Make use of work done by Eurometaux, COM

Example of existing GES for metals (1)

	Industrial Category	PROC	Operational conditions (OC)	Temperature of the process	Physical form of material	Physical form of exposure	Fugacity*	Relevant exposure routes for workers	Estimated exposure				Gene
									inhalation tier 1 ECETOC TRA	inhalation (mg/m ³) (full shift) measured	dermal ECETOC-TRA	dermal (µg/cm ²) (full shift) measured	
Activities at furnaces, coke ovens	Please specify if industrial and/or professional activity	Please indicate here PROC from current PROC list (see PROCs sheet)	Please specify volume (large or small) and give an estimation of duration of activity (>4 hours (default), 1-4 hours, 15 min-1 hour, <15 min	Please estimate if process takes place at high or low (ambient) temperature	Please specify form of handled material: powders, massive, liquid	Please specify form to which workers are exposed to	for PROCs 21-25, defined according to melting points, for other PROCs defined on the basis of e.g. dustiness	Please specify relevant exposure routes for workers: inhalation and or dermal	Please provide estimates from ECETOC-TRA for relevant PROC or other modelled estimates you may have (e.g. from EBRC doc)	Please provide measured data if you have data available	Please provide estimates from ECETOC-TRA for relevant PROC or other modelled estimates you may have (e.g. from EBRC doc)	Please provide measured data if you have data available	
at smelters, refineries, production	Industrial	22	large volume, >4 hours/day	high temperature	molten metal	fumes, gases	high: process temperature > melting point, moderate: process temperature around melting point, low : process temperature < melting point	inhalation	high fugacity: 10 mg/m ³ moderate fugacity: 3 mg/m ³ low fugacity: 1 mg/m ³ high TYP1,5 - RWC 3,0 mod TYP0,8 - RWC 1,6 low N.A -N.A		LEV present: 30 µg/cm ² /day (1980 cm ²) No LEV present: 100 µg/cm ² /day (1980 cm ²) PPE yes: 10 µg/cm ² /day (1980 cm ²) PPE no: 100 µg/cm ² '1980 cm ²)		Closed scrubber

Based on work by Eurometaux and commodity representatives

Example of existing GES for metals (2)

	Industrial Category	PROC	Operational conditions (OC)	Temperature of the process	Physical form of material	Physical form of exposure	Fugacity*	Relevant exposure routes for workers	Estimated exposure				General
									inhalation tier 1 ECETOC TRA	inhalation (mg/m ³) (full shift) measured	dermal ECETOC-TRA	dermal (µg/cm ²) (full shift) measured	
activities at furnaces, coke ovens, oxides	Please specify if industrial and/or professional activity	Please indicate here PROC from current PROC list (see PROCs sheet)	Please specify volume (large or small) and give an estimation of duration of activity (>4 hours (default), 1-4 hours, 15 min-1 hour, <15 min	Please estimate if process takes place at high or low (ambient) temperature	Please specify form of handled material: powders, massive, liquid	Please specify form to which workers are exposed to	for PROCs 21-25, defined according to melting points, for other PROCs defined on the basis of e.g. dustiness	Please specify relevant exposure routes for workers: inhalation and or dermal	Please provide estimates from ECETOC-TRA for relevant PROC or other modelled estimates you may have (e.g. from EBRC doc)	Please provide measured data if you have data available	Please provide estimates from ECETOC-TRA for relevant PROC or other modelled estimates you may have (e.g. from EBRC doc)	Please provide measured data if you have data available	
at smelters, refineries, is including production	Industrial	22	large volume, >4 hours/day	high temperature	molten metal	fumes, gases	high: process temperature > melting point, moderate: process temperature around melting point, low : process temperature < melting point	inhalation	high fugacity: 10 mg/m ³		LEV present: 30 µg/cm ² /day (1980 cm ²)		Closed closed f scrubber,
									moderate fugacity: 3 mg/m ³		No LEV present: 100 µg/cm ² /day (1980 cm ²)		
									low fugacity: 1 mg/m ³				
									high TYP1,5 - RWC 3,0		PPE yes: 10 µg/cm ² /day (1980 cm ²)		
									mod TYP0,8 - RWC 1,6		PPE no: 100 µg/cm ² '1980 cm ²)		
									low N.A -N.A				

Based on work by Eurometaux and commodity representatives

Grouping of common Processes

- Grouping of processes according nature of activity → potential exposure
 - Mechanical processes (dust)
 - Furnace processes (fumes)
 - Bagging (dust)
 - Leaching (liquids)
 - ...

Check existing GES list

- Check Eurometaux list of GES: occupational, environment
- Check RIP list of GES: occupational, environment
- Each GES is linked to a PROC
- Each PROC is linked to an exposure estimate

Occupational GES for metals (source: Eurometaux)

Processes

- Handling of ores, concentrates, raw metal oxides and scrap
- Activities at smelters, furnaces, refineries, coke ovens including oxides production
- Substantial thermal or kinetic energy applied to substance by forming/rolling, grinding, mechanical cutting, drilling or sanding, hot extrusion
- Sand and die casting, tapping and casting of melted solids, drossing of melted solids, hot dip galvanising
- Metal powder production by hot (atomisation, dry dispersion) and wet (electrolysis, wet dispersion) metallurgical processes, spinning (fibres)
- "Leaching processes, use in closed, continuous process with occasional controlled exposure (including solvent extraction)"
- Packaging, unpacking, mixing/blending and weighing of metal powder/inorganics
- ...

Occupational GES for metals (source: Eurometaux)

Processes → PROCs

- Handling of ores, concentrates, raw metal oxides and scrap **PROC 4, 8b**
- Activities at smelters, furnaces, refineries, coke ovens including oxides production **PROC 22**
- Substantial thermal or kinetic energy applied to substance by forming/rolling, grinding, mechanical cutting, drilling or sanding, hot extrusion **PROC 24**
- Sand and die casting, tapping and casting of melted solids, drossing of melted solids, hot dip galvanising **PROC 23**
- Metal powder production by hot (atomisation, dry dispersion) and wet (electrolysis, wet dispersion) metallurgical processes, spinning (fibres) **PROC 8a**
- "Leaching processes, use in closed, continuous process with occasional controlled exposure (including solvent extraction)" **PROC 2**
- Packaging, unpacking, mixing/blending and weighing of metal powder/inorganics **PROC 8b**
- ...

Occupational GES for metals (source: Eurometaux)

PROC descriptions

PROC	Explanation	Process categories based on TRA categories for workers
PROC21	Manual cutting, cold rolling or assembly or disassembly of material/article, possibly resulting in the release of fibres or rubber/metal fumes or dust.	Low energy manipulation of substances/massive metals as such or bound in materials and/or articles
PROC22	Activities at smelters, furnaces, refineries, coke ovens. Exposure related to dust and fumes to be expected. Emission of direct cooling may be relevant.	Potentially closed operations with minerals/metals at elevated temperature
PROC23	"Sand and die casting, tapping and casting of melted solids, drossing of melted solids, hot dip galvanizing. Exposure related to dust and fumes to be expected. Emission of direct cooling may be relevant"	Open processing and transfer of minerals/metals at elevated temperature

Occupational GES for metals (source: Eurometaux)

PROCs → Exposure estimate

PROC	Explanation	Exposure estimate
PROC21	Manual cutting, cold rolling or assembly or disassembly of material/article, possibly resulting in the release of fibres or rubber/metal fumes or dust.	Process Temp > melting point LEV: 0,6 - No LEV: 1 Process Temp < melting point LEV: 0,1 - No LEV: 0,2
PROC22	Activities at smelters, furnaces, refineries, coke ovens. Exposure related to dust and fumes to be expected. Emission of direct cooling may be relevant.	Process Temp > melting point LEV: 1,5 - No LEV: 3 Process Temp around melting point LEV: 0,8 - No LEV: 1,6
PROC23	"Sand and die casting, tapping and casting of melted solids, drossing of melted solids, hot dip galvanizing. Exposure related to dust and fumes to be expected. Emission of direct cooling may be relevant"	Process Temp > melting point LEV: 0,4- No LEV: 1,6 Process Temp around melting point LEV: 0,8 - No LEV: 1,6