

HH-2.1. Occupational scenario for general production activities – closed processes and largely closed processes at high temperature

Systematic title based on use descriptor	PROCs	
	1	Use in closed process, no likelihood of exposure.
	2	Use in closed, continuous process with occasional controlled exposure.
	3	Use in closed batch process (synthesis or formulation).
	22	Use in closed batch process at elevated temperature.
23	Use in open batch process at elevated temperature.	

HH-2.2 Controlling worker exposure

Product characteristics	Granular or powder form.	
Amounts used	Several tonnes per day.	
Frequency and duration of use	24 hours, 365 days per year, if a furnace has to be kept in operation.	
Human factors not influenced by risk management	None	
Other given operational conditions affecting workers exposure	Activities take place indoors. The process temperatures are mainly very high.	
Technical conditions and measures at process level (source) to prevent release	The transfer of substances and the production processes are closed and automatically controlled from control cabins, which is where operatives spend most of their time.	
Technical conditions and measures to control dispersion from source towards the worker	Where there are breaches in the closed systems such as pouring and removal of slag in metal production, LEV is used to control fumes.	
Organisational measures to prevent /limit releases, dispersion and exposure	Appropriate training. Regular testing and maintenance of plant and equipment.	
Conditions and measures related to personal protection, hygiene and health evaluation	Clothing	Overalls or heavy heat resistant clothing
	Gloves	Not required for normal industrial exposure
	Eye protection	Required where good hygiene practice or substance classification demands it.
	RPE	P2/P3 required where exposure is above the DNEL.

HH-2.3. Exposure estimation

Human Health Exposure Estimations	INHALATION							
		Activity	Source/ Parameters		RMM	Value 8h TWA mg B/m ³	RCR DNEL = 1.45 mg B/m ³	
	Measured	General production activities including cleaning	90P of measured data		RPE not taken into account	0.08	0.06	
	Modelled (MEASE)	Slag Removal	Physical form	low dustiness		Exterior LEV	Faceshield: 0.01	Faceshield: 0.0069
			Content	1-5% boron				
			PROC	23		Faceshield		
			Duration	< 15 min				
	DERMAL							
		Activity	Source/ Parameters		RMM	Value mg B/day	RCR DNEL = 4800 mg B/day	
	Measured	Dermal contact unlikely	-	-	-	-	-	
Modelled (MEASE)	Routine cleaning	Physical form	high dustiness		-	0.048	<0.001	
		Content	> 25% boron					
		PROC	2					
		Duration	15 – 60 min					
		Use pattern	closed system					
		Handling	direct					
		Contact level	incidental					

HH-2.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

If the parameters used in the MEASE model outlined above do not reflect conditions at the DU facility, the DU can use MEASE and input the parameters that do reflect conditions at the DU facility to check whether the DU works inside the boundaries set by the ES. Detailed guidance for evaluation of ES can be acquired via your supplier or from the ECHA website (guidance R14, R16).