

HH-10.1. Occupational scenario for transfer of boron-containing granular fertiliser

Systematic title based on use descriptor	PROCs	
	5	Mixing or blending in batch processes for formulation of preparations/articles (multistage and/or significant contact).
	8a	Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities.

HH-10.2 Controlling worker exposure

Product characteristics	Granular containing between 0.06 and 4.5% boron.	
Amounts used	Depends on treated area, could be several tonnes.	
Frequency and duration of use	Loading the spreader: 30 – 60 minutes. Fertiliser applied once or twice per year.	
Human factors not influenced by risk management	None	
Other given operational conditions affecting workers exposure	Activities take place indoors or outdoors at ambient conditions.	
Technical conditions and measures at process level (source) to prevent release	None	
Technical conditions and measures to control dispersion from source towards the worker	None	
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	Standard work clothes.
	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-10.3. Exposure estimation

INHALATION							
	Activity	Source/ Parameters	RMM	Value 8h TWA mg B/m ³	RCR DNEL = 1.45 mg B/m ³		
Human Health Exposure Estimations	Measured	Discharging bags of fertilisers into hoppers	Read Across from discharging bags of borates	RPE not taken into account	0.09	0.062	
	Modelled (ART)	Discharging bags of fertilisers into hoppers	Fine dry dust. Falling powders. Transferring 100-1000kg/minute. Routine transfer. Drop height >0.5m, Open process. General housekeeping No localised controls Good natural ventilation	RPE not taken into account	1.22	0.84	
	DERMAL						
		Activity	Source/ Parameters	RMM	Value mg B/day	RCR DNEL = 4800 mg B/day	
Modelled (MEASE)	Discharging of fertilisers into hoppers	Physical form	high dustiness	-	0.019	<0.001	
		Content	1 - 5% boron				
		PROC	8				
		Duration	15 – 60 min				
		Use pattern	non dispersive				
		Handling	non direct				
Contact level	extensive						

HH-10.4. 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).