HH-33.1. Occupational scenario for use of MWFs in machining

Systematic title based on use descriptor	PROCs	
	17	Lubrication at high energy conditions and in partly open process.
	24	High (mechanical) energy work-up of substances bound in materials and/or articles.

HH-33.2 Controlling worker exposure

Product characteristics		Emulsion or solution containing up to 5.5% borate or boric acid.
Amounts used		Widely varying from several to tens of litres.
Frequency and duration of use		8 hours a day responsible for several machines.
Human factors not influenced by risk management		None
Other given operational conditions affecting workers exposure		Activities take place indoors. The machinery may be operating at high temperatures.
Technical conditions and measures at process level (source) to prevent release		The machine should be enclosed as far as possible. There should also be a time delay so that the LEV has time to remove the aerosol before the enclosure is opened.
Technical conditions and measures to control dispersion from source towards the worker		LEV on each machine captures fume and aerosol from the process.
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
	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-33.3. Exposure estimation

Human Health Exposure Estimations	**INHALATION**						
		Activity	**Source/ Parameters**		**RMM**	**Value** 8h TWA mg B/m^3	**RCR** DNEL = 1.45 mg B/m3
	Measured	Exposure to water mix mist	90P of measured data (298 datapoints)		-	< 0.01	0.007
	Measured	Exposure to water mix mist	Dataset using boron as marker		-	0.07	0.048
	DERMAL						
		Activity	**Source/ Parameters**		**RMM**	**Value** mg B/day	**RCR** DNEL = 4800 mg B/day
	Modelled (MEASE)	Compacting pure borates	**Physical form**	liquid	-	2.4	<0.001
			Content	< 1% boron			
			PROC	17			
			Duration	> 240 min			
			Use pattern	wide dispersive			
			Handling	direct			
			Contact level	intermittent			

HH-33.4. 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).