E-19.1 Environmental scenario for industrial use of borates in nuclear power plants with release to water

Systematic title based on use descriptor	ERCs	Description
	2	Formulation of mixtures
	7	Industrial use of substances in closed systems

E-19.2 Controlling environmental exposure

Product characteristics	Granular, powder or dissolved form	
Amounts used	13 000 T B/y	
Frequency and duration of use	32 release days per year	
Environment factors not influenced by risk management	Dilution of 200	
Other given operational conditions affecting environmental exposure	Delivery and raw material handling mostly happen in open air. Weighing takes place inside the building. The subsequent steps take place inside a building in enclosed systems. The boron is used in closed system until the storage tank.	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	**Release factor to water after on-site treatment**	13 000 g/T
	Release factor to air after on-site treatment	Not relevant
Organizational measures to prevent/limit release from site	Spillages of powder or granulated borates should be swept or vacuumed up immediately and placed in containers for disposal in order to prevent unintentional release to the environment.	
Conditions and measures related to municipal sewage treatment plant	Not relevant; direct discharge	
Conditions and measures related to external treatment of waste for disposal	Where appropriate material should be recovered and recycled through the process. Waste containing borates should be handled as hazardous waste.	

E-19.3. Exposure estimation

ES1: Environmental Exposure Estimations		PEC	PNECadd	RCR
	Aquatic environment	1 072 µg/L	2 020 µg/L	0.531
	Terrestrial environment	Not relevant	5.4 mg/kg dw	Not relevant

E-19.4. Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures or emissions (expressed in g/T) as described above are met or the DU can demonstrate on his own that his implemented risk management measures or emissions are adequate. Detailed guidance for evaluation of ES can be acquired via your supplier or from the ECHA website (guidance R16). For environmental exposure, a DU-scaling tool (free download: http://www.arche-consulting.be/Metal-CSA-toolbox/du-scaling-tool) is available.