

HH-35.1. Occupational scenario for make up of stock solution – photographic applications

Systematic title based on use descriptor	PROCs	
	19	Hand-mixing with intimate contact and only PPE available.

HH-35.2 Controlling worker exposure

Product characteristics	The fixers and developers can be supplied as powders (up to 5% boron), as a concentrated liquid, or as a readymade stock solution (< 1% boron).
Amounts used	Professionals may typically make up 50 litres of stock solution.
Frequency and duration of use	Weekly to monthly. It would take about 5-10 minutes to make up a stock solution.
Human factors not influenced by risk management	None
Other given operational conditions affecting workers exposure	Activities take place indoors.
Technical conditions and measures at process level (source) to prevent release	Liquid concentrate may be used instead of powders to remove the risk of inhalation of dust during the addition of powders to water.
Technical conditions and measures to control dispersion from source towards the worker	None
Organisational measures to prevent /limit releases, dispersion and exposure	Appropriate training.
Conditions and measures related to personal protection, hygiene and health evaluation	Good general hygiene.

HH-35.3. 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		When using liquid concentrate, no airborne contamination will occur.																		
	Modelled (ART)	Makeup with powdered developer and fixer	Fine dry powder Falling powders 10-100 g/minute Routine transfer Open process Effective housekeeping Indoors Any size workroom No localised controls Good natural ventilation	-	0.001	<0.001														
		DERMAL																		
		Activity	Source/ Parameters	RMM	Value mg B/day	RCR DNEL = 4800 mg B/day														
	Modelled (MEASE)	Makeup with powdered developer and fixer	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: center;">Physical form</td><td style="text-align: center;">high dustiness</td></tr> <tr><td style="text-align: center;">Content</td><td style="text-align: center;">1 – 5 % boron</td></tr> <tr><td style="text-align: center;">PROC</td><td style="text-align: center;">19</td></tr> <tr><td style="text-align: center;">Duration</td><td style="text-align: center;">< 15 min</td></tr> <tr><td style="text-align: center;">Use pattern</td><td style="text-align: center;">non dispersive</td></tr> <tr><td style="text-align: center;">Handling</td><td style="text-align: center;">direct</td></tr> <tr><td style="text-align: center;">Contact level</td><td style="text-align: center;">incidental</td></tr> </table>	Physical form	high dustiness	Content	1 – 5 % boron	PROC	19	Duration	< 15 min	Use pattern	non dispersive	Handling	direct	Contact level	incidental	-	0.198	<0.001
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HH-35.4. 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).