

Block I General details	
1	<p>Location of the PCB disposal facility:</p> <p>Name of Facility: <i>EMS-DOTTIFON AG</i> City: <i>5605-DOTTIFON</i> Country: <i>SWITZERLAND</i> <i>(Provide address information in Block IV)</i></p>
2	<p>Licence / authorization:</p> <p>Is this facility licensed or authorized to handle PCBs? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If "Yes": (i) Nature of license / authorization: (ii) Please submit the licensing history <i>(please attach to this questionnaire)</i></p> <p>Issuing authority <i>(name)</i>: <input checked="" type="checkbox"/> National <input checked="" type="checkbox"/> Local or <input type="checkbox"/> Independent</p>
3	<p>Please provide information on storage at the facility including:</p> <p>Capacity for the various PCB waste and equipment types:</p> <p>Method:</p> <p>Holding time:</p>
4	<p>Worker protection <i>(Please summarize protective measures applied during treatment of PCB wastes)</i></p> <p>If there is a possibility to come into contact with PCBs: protective clothing impervious overall suitable gloves overshoes, goggles and respirator</p> <p>Does the facility have an accident book? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Most frequent cause(s) of incidents involving PCBs: no incidents involving PCBs</p>

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Opinion box - PCB Management issues *(Please describe briefly)*

What are your major concerns?

Can you identify research and development needs in PCB management that would be beneficial for your region and waste managers worldwide?

Block II Types of PCB wastes

Part A: Treatment of PCB containing equipment/material

Part A1: Metallic Parts

A1.1	Types of metallic PCB equipment/material treated:	Limitation on waste accepted <i>(please specify, if appropriate)</i>		Quantity
		Concentration <i>(specify the unit)</i>		<i>(specify the unit)</i>
		unit:		unit:
		min	max	
	<input checked="" type="checkbox"/> Equipment containing 100 % PCB	0%	100%	15 kg
	<input checked="" type="checkbox"/> Equipment containing mineral oil contaminated by PCB	0%	50%	30 kg
	<input type="checkbox"/> Others:			
<i>Please specify any other limitation on waste accepted:</i>				
A1.2	Presentation of metallic equipment/material In what form must the metallic PCB equipment/material be presented:			
	<input checked="" type="checkbox"/> Drums max. 200 liter <input type="checkbox"/> Other packaging:			
	<input type="checkbox"/> Other constraints:			

A1.3

Treatment of metallic PCB equipment/material

Immediate destruction of metallic equipment/material containing PCB? Yes No

If 'Yes', please specify the applied technology in Part III

Extraction of PCB? Yes No

If 'Yes':

- please specify the applied technology in Part III
- Is the decontaminated metallic equipment/material subjected to reuse/recycling? Yes No

If 'Yes', please specify in **Block II Part C** (Reuse and recycling)

Part A: Treatment of PCB containing equipment/material

Part A2: Non-metallic Parts

A2.1	Types of non-metallic PCB equipment/material treated:	Limitation on waste accepted <i>(please specify, if appropriate)</i>		
		Concentration <i>(specify the unit)</i>		Quantity <i>(specify the unit)</i>
		unit:		unit:
		min	max	
<input checked="" type="checkbox"/>	PCB-containing materials (clothes, cables, etc.)	0%	20%	50 kg
<input checked="" type="checkbox"/>	PCB-contaminated residues, sludges	0%	10%	100 kg
<input checked="" type="checkbox"/>	PCB-contaminated soils and sediments	0%	10%	100 kg
<input checked="" type="checkbox"/>	Packaged / drummed waste	0%	10%	100 kg
<input checked="" type="checkbox"/>	Other:	0%	10%	100 kg
<i>Please specify any other limitation on waste accepted:</i>				
A2.2	Presentation of non-metallic equipment/material In what form must the non-metallic PCB equipment/material be presented: <input checked="" type="checkbox"/> Drums <input type="checkbox"/> Other packaging: <input type="checkbox"/> Other constraints:			

A2.3

Treatment of non-metallic PCB equipment/material

Immediate destruction of non-metallic equipment/material containing PCB? Yes No

If 'Yes', please specify the applied technology in Part III

Extraction of PCB? Yes No

If 'Yes':

- please specify the applied technology in Part III
- Is the decontaminated non-metallic equipment/material subjected to reuse/recycling? Yes No

If 'Yes', please specify in **Block II Part C** (Reuse and Recycling)

Part B: Treatment of PCB oils and PCB waste oils

B1	Types of PCB oils and PCB waste oils treated:	Limitation on waste accepted <i>(please specify, if appropriate)</i>		
		Concentration <i>(specify the unit)</i>		Quantity <i>(specify the unit)</i>
		unit:		unit:
		min	max	
	<input checked="" type="checkbox"/> 100 % PCB oils	0%	100%	15'000 kg
	<input checked="" type="checkbox"/> Mineral oils contaminated by PCB	0%	50%	30'000 kg
	<input checked="" type="checkbox"/> Waste oils contaminated by PCB	0%	50%	30'000 kg
	<input type="checkbox"/> Other:			
<p><i>Please specify any other limitation on waste accepted:</i></p>				
B2	<p>Presentation of PCB oil and PCB waste oil</p> <p>In what form must the PCB oil and PCB waste oil be presented:</p> <p><input checked="" type="checkbox"/> Drums</p> <p><input checked="" type="checkbox"/> Other packaging: Container and Truck</p> <p><input type="checkbox"/> Other constraints:</p>			
B3	<p>Treatment of PCB oils and PCB waste oils</p> <p>Please specify the applied technology for the destruction of PCB oils and PCB waste oils in Part III</p>			

Part C: Reuse & Recycling of decontaminated PCB equipment/material

C1	<p>Types decontaminated PCB equipment/material treated:</p> <p><input type="checkbox"/> Transformers</p> <p><input type="checkbox"/> Capacitors</p> <p><input type="checkbox"/> Materials (clothes, cables, etc.)</p> <p><input type="checkbox"/> Residues, sludges</p> <p><input type="checkbox"/> Soils and sediments</p> <p><input type="checkbox"/> Other:</p>	<p>Limitation on waste accepted <i>(please specify, if appropriate)</i></p> <p>Quantity <i>(specify the unit)</i></p> <p>unit:</p>
<p><i>Please specify any other limitation on waste accepted:</i></p>		
C2	<p>Presentation of decontaminated PCB equipment/material</p> <p>In what form must the decontaminated PCB equipment/material be presented:</p> <p><input type="checkbox"/> Drums</p> <p><input type="checkbox"/> Other packaging:</p> <p><input type="checkbox"/> Other constraints:</p>	

C3

Treatment of decontaminated PCB equipment/material

Reuse and Recycling of decontaminated PCB equipment/material? Yes No

If 'Yes', please specify the applied technology in Part III

Is the decontaminated PCB equipment/material disposed of? Yes No

If 'Yes', please specify:

Transport to the disposal site? Yes No

If 'Yes':

International transport

National transport

Location of disposal site:

Please provide a short description of disposal site:

Block III Detailed information on applied technologies		
1	The following description refers to Block II, Part:	Type of PCB waste or decontaminated equipment/material:
	<input checked="" type="checkbox"/> A1 (Treatment of metallic PCB equipment/material)	
	<input checked="" type="checkbox"/> A2 (Treatment of non-metallic PCB equipment/material)	
	<input checked="" type="checkbox"/> B (Treatment of PCB oil and PCB waste oil)	
	<input type="checkbox"/> C (Reuse and recycling of decontaminated PCB equipment/material)	
2	<p>Applied technologies (Please specify the technology used for disposal):</p> <p><input type="checkbox"/> Pyrolysis / gasifiers</p> <p><input type="checkbox"/> Gas Phase Chemical Reduction (GPCR)</p> <p><input type="checkbox"/> Base Catalysed Decomposition (BCD)</p> <p><input type="checkbox"/> Sodium Reduction</p> <p><input type="checkbox"/> Super-Critical Water Oxidation (SCWO)</p> <p><input type="checkbox"/> Plasma Arc</p> <p><input type="checkbox"/> Molten Salt Oxidation</p> <p><input type="checkbox"/> Solvated Electron Technology</p> <p><input type="checkbox"/> Retrofilling</p> <p><input checked="" type="checkbox"/> Other: incineration</p> <p>Type of technology (1-sentence description):</p> <p>incineration in a rotary kiln incinerator</p> <p>Description of the technology please provide additional information as appropriate (summarize here and, if necessary, attach documentation)</p> <p>Commissioned? <input type="checkbox"/> Yes <input type="checkbox"/> No Year:</p> <p>Can the technology be used in a mobile facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p>	
3	<p>State of development</p> <p>Does the technology exist as an industrial unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If "No", please indicate when it will become operational:</p> <p>If "Yes", please indicate how many units exist:</p> <p>In what countries:</p>	

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Pretreatment:

Does the technology require any pretreatment procedures? Yes No

If "Yes", please specify required pretreatment procedures:

- Thermal Desorption
 Dilution
 Low Temperature Rinsing
 Electro-osmosis
 Draining/Solvent washing
 Dismantling/Shredding
 Other:

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Byproducts

What byproducts does the technology produce? *(please specify below)*

Byproduct	Kind	Amount
Liquids:	3'000 lt / t	L per tonnes of waste treated
Solids:	100 kg / t	kg per tonnes of waste treated
Air:	12'000 m ³ / t	m ³ per tonnes of waste treated

Does the technology allow all byproducts to be monitored for POPs*/PTS** before release? Yes No

If POPs*/PTS** are discovered, can the byproducts be returned to the process for further treatment? Yes No

Are any of the byproducts classified as other sorts of hazardous wastes? Yes No

If "Yes" please specify:

What volumes of such byproducts are generated by handling a unit volume of PCB wastes:

Can third party monitoring data be provided? Yes No

If "Yes", please attach to this questionnaire.

* POPs: Persistent Organic Pollutants
 ** PTS: Persistent Toxic Substances

How are byproducts disposed of? *(please describe briefly)*

liquids : waste water treatment plant

solids.: scoria dump

6	<p>Efficiency <i>(please specify, if appropriate)</i></p> <p>Destruction efficiencies (DEs): 100 %</p>
7	<p>Monitoring & Control of releases</p> <p>What technologies are used to monitor releases: Air: carbonmonoxid, nitricoxid Effluents: pH Solids: eluat test</p> <p>Are all releases monitored for POPs*/PTS** before release? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If POPs*/PTS** are discovered, can the releases be returned to the process for further treatment? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>Are any of the releases classified as hazardous wastes? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If "Yes" please specify:</p> <p>What technologies are used/ required to monitor and treat any such releases prior to release:</p> <p>What volumes of such releases are generated by handling a unit volume of PCB wastes:</p> <p>Is third party monitoring data available? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p><i>If "Yes", please attach to this questionnaire.</i></p> <p style="text-align: right;">* POPs: Persistent Organic Pollutants ** PTS: Persistent Toxic Substances</p>
	<p>How are releases disposed of? <i>(please describe briefly)</i></p> <p>scoria : treatment in an other factory for solidify scoria, then the inactive waste will be deposited in a UTD. this happens after washing, selecting and breakening the hole material.</p> <p>ash : treatment equal to scoria. exclusive, washing, selecting and breaking.</p> <p>mud : after drying and cleaning it will solidified and deposited in a garbage dump site</p>

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Disposal costs

What are the *approximate* costs for applying the technology per unit[‡], **including** costs for all technical pretreatment steps and **excluding** all costs **not** related to the technical application of the technology (transport costs, costs for disposal of decontaminated transformers/capacitors/materials, etc.)?

Please specify type of treated/disposed PCB equipment/material/oil below:

	Costs per unit [‡]	Currency
a) equipment containing 100% PCB in drum	1250.- / ton	CHF
b) equipment cont. mineraloil contaminated by PCB	1250.- / ton	CHF
c) PCB-containing materials (clothes, cable)	1350.- / ton	CHF
d) PCB-cont. residues, slud,soils & sediments and packaged / drummed waste	1350.- / ton	CHF
e) 100% PCB soils	1 1100.- / t 3 900.- / T 2 1000.- / ton	
f) Mineral oils contaminated by PCB	1 1100.- / t 3 900.- / t 2 1000.- / ton	
g) waste oils contaminated by PCB	1 1100.- / t 3 900.- / T 2 1000.- / ton	

[‡] Specify the unit for a) to g):

a: in drum of max. 15kg; b: in drum of max.30kg; c: in drum of max. 50kg;
d: in drum of max. 100kg; e-g:in barrel(1), in container (2), by truck (3)

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Treatment capacities and scaling (tonnes per year for main waste & equipment types)

Capacity of existing facilities: units[‡] per year

Can the technology be adapted to higher or lower capacities? Yes No

If "Yes":

(i) What is the capacity of the smallest commercially viable facility: units[‡] per year

(ii) What is the capacity of the largest commercially viable facility: units[‡] per year

Does the adaptation will cause additional costs? Yes No

If "Yes" specify the increase in costs for the adaptation (%) of the initial costs:

(i) For smaller plants: %

For larger plants: %

[‡] Please specify the unit:

Block IV

Facility: Address and Service Information

1

Facility Name: EMS-DOTTIKON

Address: P.O. BOX

City/Town: CH - 5605 DOTTIKON

P.O. Box: -

District/State: AG

Country: SWITZERLAND

Telephone: +41 56 616 8111

Fax: +41 56 616 8120

Email: INFO@EMS-DOTTIKON.CH

Web site: WWW.EMS-DOTTIKON.CH

Person completing form

Name: Benno Beck

Position: Vice President and Head of purchasing

Parent Company (if different):

Address:

City/Town:

P.O. Box:

District/State:

Country:

Telephone:

Fax:

Email:

<p>2</p>	<p>Other Services offered by the company</p> <ul style="list-style-type: none"><input type="checkbox"/> Laboratory analysis / testing<input type="checkbox"/> PCB waste packaging for shipment<input type="checkbox"/> PCB classification / labeling<input type="checkbox"/> Clean-up of PCB contaminated sites<input type="checkbox"/> PCB wastes transport<input type="checkbox"/> Other PCB-related services:
<p>3</p>	<p>Further information</p> <p>Identify any company information (brochures, notes etc...) provided separately and if you wish provide additional comments on your services in not more than 50 words:</p> <p>EMS-DOTTIKON is a Swiss based chemical company focusing on custom synthesis of fine chemicals and API's for the pharmaceutical industry</p> <p>for further information please contact: www.ems-dottikon.ch</p>