

Block I General details	
1	<p>Location of the PCB disposal facility:</p> <p>Name of Facility: <b>KINECTRICS INC.</b></p> <p>City: <b>TORONTO</b> Country: <b>CANADA</b></p> <p><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":</p> <p>(i) Nature of license / authorization: <b>CHEMICAL DESTRUCTION FOR HIGH &amp; LOW LEVEL PCB LIQUIDS</b></p> <p>(ii) Please submit the licensing history <i>(please attach to this questionnaire)</i></p> <p>Issuing authority (name):</p> <p><input type="checkbox"/> National <input type="checkbox"/> Local or <input type="checkbox"/> Independent <b>PROVINCIAL</b></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><b>- CLOSE SYSTEM, NOT EMISSION</b></p> <p><b>- PERSONAL PROTECTIVE CLOTHING (GLOVES, SAFETY GLASSES, RUBBER APRON)</b></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: <b>AFTER 20 YEARS OF OPERATION THERE ARE NO ACCIDENTS.</b></p>

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Opinion box - PCB Management issues (Please describe briefly)

What are your major concerns?

- IMPLEMENTATION OF DISPOSAL PLANS FOR PCB'S IN DEVELOPING COUNTRIES.
- DIVERSION <sup>(ALLOCATION)</sup> OF RESOURCES TO DEAL WITH PROBLEMS.

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

- KINETRIS HAS SPENT A LOT OF EFFORTS DEVELOPING ENVIRONMENTALLY FRIENDLY, ECONOMICAL OPTIONS FOR THE TREATMENT OF PCB WASTE.
- IN NORTH AMERICA, PCB'S HAVE BEEN DEALT WITH FOR MANY YEARS.

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: - TRANSFORMERS - CAPACITORS - SWITCHES	Limitation on waste accepted (please specify, if appropriate)		Quantity (specify the unit) Kg unit:
		Concentration (specify the unit) unit:		
		min	max	
	<input checked="" type="checkbox"/> Equipment containing 100 % PCB			20,000
	<input checked="" type="checkbox"/> Equipment containing mineral oil contaminated by PCB			20,000
	<input type="checkbox"/> Others:			
Please specify any other limitation on waste accepted: - NATIONAL (ONTARIO HYDRO'S WASTE ONLY)				
A1.2	<b>Presentation of metallic equipment/material</b> In what form must the metallic PCB equipment/material be presented: <input checked="" type="checkbox"/> Drums <input checked="" type="checkbox"/> Other packaging: <i>Tankers</i>  <input type="checkbox"/> Other constraints:			

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)	TRANSFORMERS, CAPACITORS, SWITCHES
	<input checked="" type="checkbox"/> A2 (Treatment of non-metallic PCB equipment/material)	PAPER, CLOTHING, TOOLS.
	<input checked="" type="checkbox"/> B (Treatment of PCB oil and PCB waste oil)	oil & pure PCBs
	<input type="checkbox"/> C (Reuse and recycling of decontaminated PCB equipment/material)	ALL METALLIC AND NON-PCB OIL (MINERAL OIL)
2	Applied technologies (Please specify the technology used for disposal):	
	<input type="checkbox"/> Pyrolysis / gasifiers <input type="checkbox"/> Gas Phase Chemical Reduction (GPCR) <input type="checkbox"/> Base Catalysed Decomposition (BCD) <input checked="" type="checkbox"/> Sodium Reduction LIQUID OIL <input type="checkbox"/> Super-Critical Water Oxidation (SCWO) <input type="checkbox"/> Plasma Arc <input type="checkbox"/> Molten Salt Oxidation <input type="checkbox"/> Solvated Electron Technology <input type="checkbox"/> Retrofilling <input type="checkbox"/> Other:	
Type of technology (1-sentence description):		MOBILE AND FIXED CHEMICAL PROCESS.
Description of the technology please provide additional information as appropriate (summarize here and, if necessary, attach documentation)		SODIUM-BASED REACTION, SELECTIVE DESTRUCTION OF PCB'S - CHLOROBENZENE ARE SEPARATED FROM PCB'S IN ASH/SLURRY MIXTURES. AN
Commissioned? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Year: 1985
Can the technology be used in a mobile facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
3	State of development	
	Does the technology exist as an industrial unit? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If "No", please indicate when it will become operational:		
If "Yes", please indicate how many units exist:		3 MOBILE, 1 FIXED (UNDER CONSTRUCTION IN JAPAN)
In what countries:		

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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: *DISTILLATION FOR ASKARELS ONLY.*

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## Byproducts

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

Byproduct	Kind	Amount
Liquids:	<i>CLEVED OIL</i>	<i>980 kg</i> per tonnes of waste treated
Solids:	<i>SLUDGE (NaCl, NaOH, POLYPHENYLS)</i>	<i>20</i> kg per tonnes of waste treated
Air:		<i>m<sup>3</sup></i> 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: *2%*

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)

*SLUDGE (NON-PCB'S) ARE DISPOSED THROUGH CONVENTIONAL WASTE DISPOSAL COMPANIES*

6	<p>Efficiency (please specify, if appropriate) <b>TOTAL DESTRUCTION OF PCB'S</b></p> <p>Destruction efficiencies (DEs): %</p>
7	<p><b>Monitoring &amp; Control of releases</b></p> <p>What technologies are used to monitor releases:</p> <p>Air: <b>POP AIR MONITORING</b></p> <p>Effluents: <b>GC ANALYSIS</b></p> <p>Solids: <b>SOLVENT EXTRACTION AND GC ANALYSIS</b></p> <p>Are all releases monitored for POPs*/PTS** before release? <input type="checkbox"/> Yes <input 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: <b>&lt; 5% OF PERMISSIBLE AIR EMISSION</b></p> <p>Is third party monitoring data available? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If "Yes", please attach to this questionnaire.</p> <p style="text-align: right;">* POPs: Persistent Organic Pollutants ** PTS: Persistent Toxic Substances</p> <p>How are releases disposed of? (please describe briefly)</p>

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**Disposal costs**

What are the *approximate* costs for applying the technology per unit<sup>‡</sup>, 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 <sup>‡</sup>	Currency
a)		
b)		
c)		
d)		
e)		
f)		
g)		

<sup>‡</sup> Specify the unit for a) to g):

VARIES, DEPENDING ON CONCENTRATION

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

Capacity of existing facilities: 7000 TONNES units<sup>‡</sup> 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: 4500 LT units<sup>‡</sup> per year BATCH
- (ii) What is the capacity of the largest commercially viable facility: 2000 LT units<sup>‡</sup> per year BATCH

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: %

<sup>‡</sup> Please specify the unit:

FABRICATION COSTS, LABOUR COSTS.

## Block IV

## Facility: Address and Service Information

1

Facility Name: KINETRICS INC.

Address: 800 KIPLING AVENUE

City/Town: TORONTO

P.O. Box:

District/State: ONTARIO

Country: CANADA

Telephone: (416) 207-5876

Fax: (416) 207-6094

Email: LUCIANO.GONZALEZ@KINETRICS.COM

Web site: WWW.KINETRICS.COM

Person completing form

Name: LUCIANO A. GONZALEZ

Position: MANAGER  
ENVIRONMENTAL TECHNOLOGIES

Parent Company (if different):

Address:

City/Town:

P.O. Box:

District/State:

Country:

Telephone:

Fax:

Email:

2	<p><b>Other Services offered by the company</b></p> <p><input checked="" type="checkbox"/> Laboratory analysis / testing</p> <p><input checked="" type="checkbox"/> PCB waste packaging for shipment</p> <p><input type="checkbox"/> PCB classification / labeling</p> <p><input type="checkbox"/> Clean-up of PCB contaminated sites</p> <p><input type="checkbox"/> PCB wastes transport</p> <p><input checked="" type="checkbox"/> Other PCB-related services: TRAINING ON PCB HANDLING / DESTRUCTION</p>
3	<p><b>Further information</b></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>- KINETRICS' PROCESSES (CHEMICAL DESTRUCTION) HAS BEEN APPROVED IN CANADA, JAPAN AND MEXICO</p> <p>- KINETRICS OFFERS DIRECT TREATMENT SERVICES AND LICENSING OF TECHNOLOGIES</p>