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PLASCON

CASE STUDY

BCD TECHNOLOGIES PTY LTD

WASTE TREATED – POLYCHLORINATED BIPHENYL (PCB) AND OTHER PERSISTENT ORGANIC POLLUTANTS (POPS)

BCD TECHNOLOGIES, BRISBANE, AUSTRALIA

Background

BCD Technologies Pty Ltd a waste destruction company specialising in collection and destruction of PCBs was the first company to commercialise the US EPA-licensed Base Catalysed Dechlorination (BCD) process. The process was operated for a number of years to destroy Polychlorinated Biphenyl (PCB) contaminated oil.

As a consequence of the BCD process's limitation on the maximum concentration of PCB that it could economically treat BCD Technologies purchased a licence and PLASCON® plant from SRL Plasma Limited in 1997 to treat a range of concentrated chlorinated wastes including PCBs and organochlorine pesticides.

Waste Treated

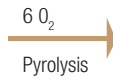
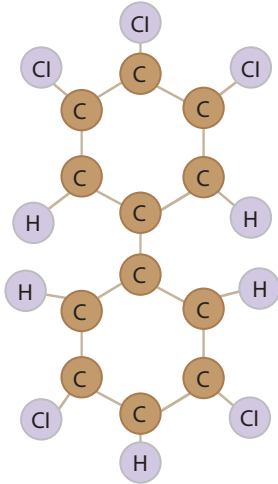
BCD Technologies use their PLASCON® plant to destroy a variety of PCB wastes containing chlorine concentrations up to 60%.

The bulk of the waste is drained from electrical transformers and capacitors and transferred to a bulk feed storage vessel. Any contaminated solids are then broken up and the remaining liquid is extracted by a thermal desorption process. The condensed vapours are added to the liquid storage. The liquid waste is then pumped directly to the PLASCON® plant for destruction.

Chemistry

An example of the decomposition chemistry for one specific PCB molecule follows:

Pentachloro Biphenyl



Plasma Species	Flight tube Species		Discharge Products
12 C atoms	12 CO	Flare $12 O_2$	12 CO ₂
12 O atoms			
5 H atoms	5 HCl	Quench $5 NaOH$	5 NaCl
5 Cl atoms			5 H ₂ O

Note: Sufficient oxygen is added to convert carbon to carbon monoxide which is subsequently converted to carbon dioxide in a flare.

Operational Performance

BCD Technologies have operated their PLASCON® plant up to 24 hours a day, destroying waste at the rate of 40-45 kg/h, returning a Destruction Efficiency of >99.9999%.

The level of PCB in the effluent discharged to the sewer complies with the 2 ppb limit specified in the Australian Government's PCB Management Plan.

