

# Stuart Well Services

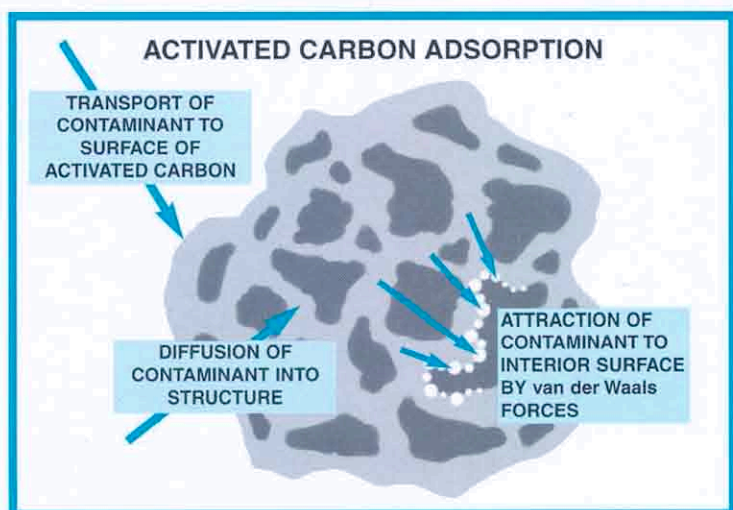
## GRANULAR ACTIVATED CARBON FOR GROUNDWATER TREATMENT

Many brown field sites are now being assessed for future redevelopment and the groundwater encountered may be contaminated by the former industrial use. Often, the contaminated groundwater has to be removed and treated on site for subsequent disposal.

Stuart Well Services Limited has available, on a rental basis, activated carbon units of various sizes suitable for site use. Often these units are used during the site evaluation stage to qualify and quantify the contamination on site in the pilot scheme and may also be used during the full remediation works.

High quality activated carbons have a highly porous structure. Each gram of activated carbon has a surface area in excess of 1000m<sup>2</sup>. Impurities in the groundwater are removed by the process of physical adsorption.

There are essentially three steps in this process:-



- 1). Transport of contaminant to surface of the Activated Carbon.
- 2). Diffusion of contaminant into structure.
- 3). Attraction of contaminant to interior surface by van der Waals forces.

**Typical liquid phase contaminants that can be treated by using activated carbon are:-**

- Aromatic and Aliphatic Hydrocarbons
- Chlorinated Hydrocarbons
- Polychlorinated Biphenyls (PCB's)
- Pesticides and Herbicides
- Phenolic Compounds

The simple design of the carbon units make both installation and operation straight forward. Units are free-standing requiring only a solid base installation. Once installed, operations can be continued without supervision, requiring only the routine monitoring of outlet concentrations.

The adsorptive capacity of activated carbon is dependent on the solubility, polarity, concentration and molecular mass of the compound. Maximum adsorptive capacity is generally achieved with compounds of low polarity, low solubility and high molecular weight, present in concentrations close to their solubility limit. The performance data for units available for rental are listed in Table 1. Stuart Wells Services Limited is also able to offer additional resources for your groundwater remediation project including abstraction pumps, storage tanks, boost pump, flowmeters, well liners, surface pipework and wellheads.

	Maximum Flow	Empty Bed Contact Time	Dimensions		Weight
			Height	Diameter	
AC1	1.0m <sup>3</sup> /hour	10 minutes	0.9m	0.6m	110 Kg
AC10	10m <sup>3</sup> /hour	10 minutes	2.2m	1.7m	1,770 Kg
AC100	100m <sup>3</sup> /hour	10 minutes	4.0m	3.5m	12,000 Kg

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