



Commercial Opportunity

Adsorbent Media Technology

For further details please contact:
Dr Steve Callister

Technology Transfer Manager

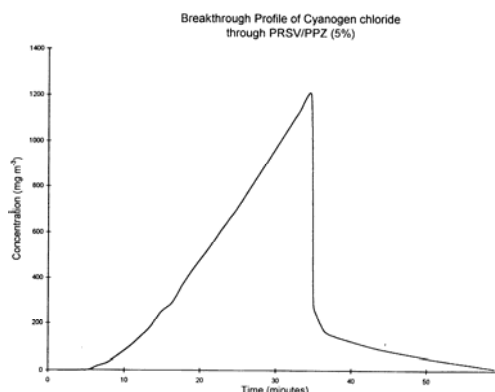
T: +44 (0) 1980 590079

stevecallister@ploughshareinnovations.com

The UK MoD's Defence Science & Technology Laboratory (Dstl) has developed a number of novel adsorbent media technologies that provide enhanced protection against toxic chemical and bacterial agents. Ploughshare Innovations, the technology transfer company of Dstl, is actively seeking suitable licensees to commercially exploit these patented technologies for air purification in military, civilian emergency response and industrial protection markets.

P1178 – Adsorbent Zeolite Composition

The invention discloses a method of removing toxic substances (e.g. perfluorocarbon or methyl iodine) from air, for example in a breathing apparatus, using a microporous zeolite (e.g. PRSV) impregnated with an organic amine (e.g. piperazine, PPZ). Compared to impregnated activated carbon, the said composition is less susceptible to amine decomposition to ammonia, and to the deterioration of performance under humid conditions.



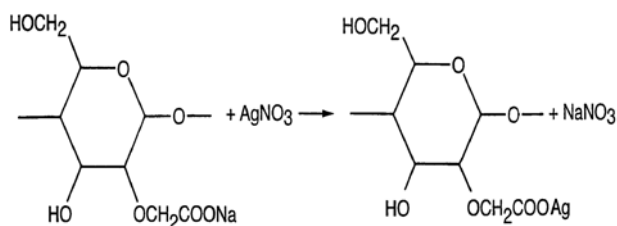
GB Pub: GB 2327048, 13 Jan 1999

Granted: GB

Pending: None

P1179– Activated Carbon Filter

The invention discloses a novel activated carbon production process for filters aimed at the removal of toxic substances (hydrogen cyanide and cyanogen gas) from air, for example in a breathing apparatus. Activated carbon containing at least one embedded transition metal (e.g. copper, silver, cobalt) is produced by exchanging a metal ion for a cellulose ion in a carboxymethyl



Ploughshare Innovations Limited

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Commercial in Confidence

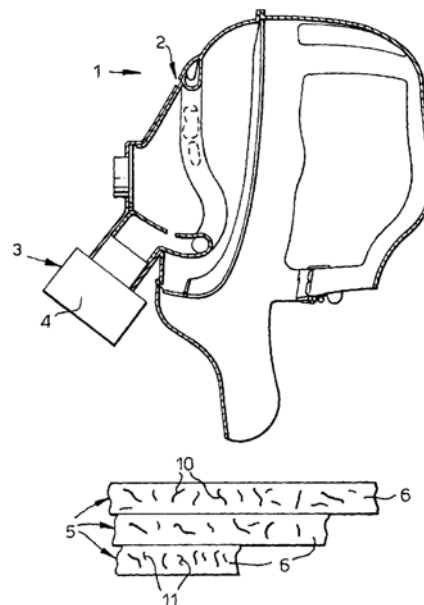
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cellulose derived ion exchange material (e.g. paper or cardboard) followed by activation. The technology has been researched and developed up to a proven to a lab scale concept level. Compared to impregnated activated carbons, the invention achieves improved dispersion of metal catalyst (less aggregation, better utilisation) and reduced mobility (less ageing, better shelf & operational life). It works well with scrap paper as feed stock (albeit at low yields) and is effective with a variety transition metals (Co, Cu, Ag, Cr) – singly or in combinations.

PCT Pub: WO 99/011358, 11 Mar 99
Granted: US, Canada, BE, DE, FR, GB, IT, NL
Pending: Japan

P1262 Combined Vapour and Particulate Filter

The invention discloses a novel filter material suitable for removal of both particulate and vapours from air, for example, in a breathing apparatus. The material comprises a first set of large diameter ($\sim 7.0 \times 10^{-6} \text{m}$) impregnated carbon fibres at 70% (by mass) and a second set of small diameter ($\sim 0.5 \times 10^{-6} \text{m}$) glass / carbon microfibres. The material is produced as flat sheet using modifiers and sheet formers similar to those used in paper making. The first fibre group filter vapours (high and low boiling point) and the second fibre group filter particulates. Combining both groups in an integrated filter results in a reduction in weight and breathing resistance compared to separate two filter systems.



PCT Pub: WO 01/066223, 13 Sept 01
Granted: US, China, BE, DE, FR, GB, NL
Pending: Canada, Japan

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Steve Callister
Technology Transfer Manager

Tel: 01980 590079
Email: steve.callister@ploughshareinnovations.com