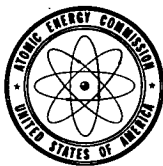


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AEC-NASA TECH BRIEF



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Small, Low Cost, Artificial Kidney

A small, disposable, low cost hemodialyzer can be used at home by non-medically trained personnel. It does not require costly or complex equipment for operation, and does not require a blood pump or a large priming volume of blood.

Short lengths of semipermeable membrane tubes are arranged in parallel, supported by a plastic mesh and encased in epoxy at the ends. The tubes are connected to input and output blood manifolds which are separated by the dialysate chamber. Pressure drop through this configuration is low enough to permit blood flow without pump assist.

The unit requires only 50 ml of blood for priming, much less than the amount required for other dialyzers. This, coupled with the low unit cost and the elimination of the complex safety equipment required for lengthy unattended operation, makes it especially attractive for exploration of daily dialysis as a replacement for twice weekly dialysis.

Daily dialysis would require only two hours or less and could be monitored by the patient. The new hemodialyzer would eliminate the illness caused by a three or four day accumulation of waste products and might save many of the 30,000 people in the United States who die each year of kidney disease because they cannot afford costly hospital treatment.

Note:

Technical questions may be directed to:
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Reference: TSP72-10371

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