

NASA TECH BRIEF

NASA Pasadena Office

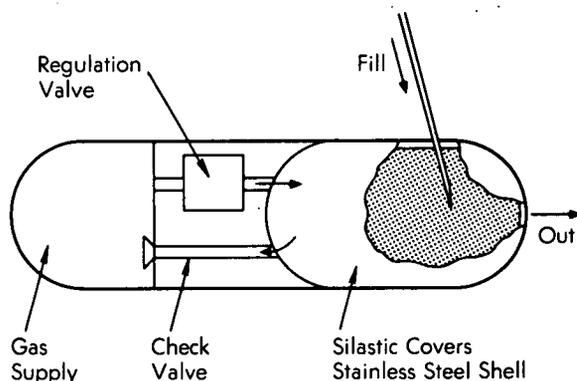


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Implantable Drug Therapy Device — A Concept

The problem:

There is need for a reliable drug infusor pump that can be implanted within the patient and requires no maintenance or attention for long periods of time.



The solution:

A small, rechargeable, implantable infusor which contains a fluid medicament stored under pressure dispenses the fluid continuously through a catheter.

How it's done:

The design envisioned for the implantable device is generally in the form of a stainless steel cylinder about 2.5 cm in diameter and 8 to 10 cm in length. The solution reservoir (about 40 ml) is a silicone rubber bag mounted within the cylinder and equipped with a special resealable side-seal as indicated in the diagram. Gas at high pressure in a reservoir passes through a flow regulator and squeezes the bag; since

the flow rate of gas is controlled, the solution within the bag can be dispensed directly through a catheter.

At flow rates of 4 to 5 ml per day, the reservoir will need to be filled once a week; refilling can be readily accomplished with a hypodermic needle. As shown in the diagram, resealable discs are available which can resist about 70 punctures; thus, the implantable device can be used for as much as one year before it needs to be replaced. A check valve allows rapid return of gas to the reservoir when the fluid in the implanted device is replenished.

The body of the implantable device is covered by a pliable silicone rubber sheath attached to a suture pad for securing the device.

Note:

Requests for further information may be directed to:

Technology Utilization Officer
 NASA Pasadena Office
 4800 Oak Grove Drive
 Pasadena, California 91103
 Reference: TSP72-10708

Patent status:

NASA has decided not to apply for a patent.

Source: Cyril Feldstein of
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