

Title (en)
RESILIENT CONTAINERS FOR HYPERPOLARIZED GASES

Title (de)
ELASTISCHER BEHÄLTER FÜR HYPERPOLARISIERTE GASE

Title (fr)
RECIPIENTS SOUPLES POUR GAZ HYPERPOLARISES

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Abstract (en)
[origin: WO9966255A2] A resilient multi-layer container is configured to receive a quantity of hyperpolarized noble fluid such as gas and includes a wall with at least two layers, a first layer with a surface which minimizes contact-induced spin-relaxation and a first or second layer which is substantially impermeable to oxygen. The container is especially suitable for collecting and transporting ^3He . The resilient container can be formed of material layers which are concurrently responsive to pressure such as polymers, deuterated polymers, or metallic films. The container can include a capillary stem and/or a port or valve isolation means to inhibit the flow of gas from the main volume of the container during transport. The resilient container can be configured to directly deliver the hyperpolarized noble gas to a target interface by deflating or collapsing the inflated resilient container. In addition, single layer resilient containers with T_1 's of above 4 hours for ^{129}Xe and above 6 hours for ^3He include materials with selected relaxivity values. In addition, a bag with a port fitting or valve member and one or more of a capillary stem and port isolation means is configured to minimize the depolarizing effect of the container valve or fitting(s). Also disclosed is a method for determining the gas solubility in an unknown polymer or liquid using the measured relaxation time of a hyperpolarized gas.

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