COMPRESSION AND COLD WELD SEALING METHODS AND DEVICES

ABSTRACT

Compression cold welding methods, joint structures, and hermetically sealed containment devices are provided. The method includes providing a first substrate having at least one first joint structure which comprises a first joining surface, which surface comprises a first metal; providing a second substrate having at least one second joint structure which comprises a second joining surface, which surface comprises a second metal; and compressing together the at least one first joint structure and the at least one second joint structure to locally deform and shear the joining surfaces at one or more interfaces in an amount effective to form a metal-to-metal bond between the first metal and second metal of the joining surfaces. Overlaps at the joining surfaces are effective to displace surface contaminants and facilitate intimate contact between the joining surfaces without heat input. Hermetically sealed devices can contain drug formulations, biosensors, or MEMS devices.

Fig. 1