# News Release Digest



## Materials field

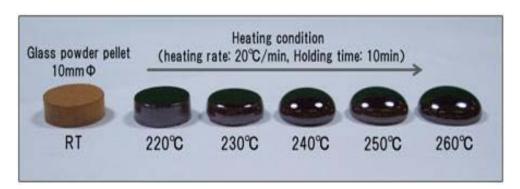
#### Hitachi Research Laboratory

Department of Green Materials and Process Research

Hitachi, Ltd., web site [26th Nov 2012 News Release] http://www.hitachi.com/New/cnews/121126a.html

### 220-300°C low-melting glass for hermetic sealing

#### Gold-tin solder level temperatures achieved



#### [Achievement]

Hitachi, Ltd. and Hitachi Chemical Co., Ltd. today announced the successful joint development of a 220-300°C low-melting temperature glass ("low-melting glass"). This glass was developed as a low temperature sealant which does not contain regulated materials\*1 such as lead which presents a high environmental load or easily vaporized halogens such as fluorine or iodine.

\*1 Regulated materials: Materials regulated by RoHS, REACH, etc.

#### **■**Characteristics

- A new technique was developed to control the glassnetwork structure to allow the stable introduction of silver ions with the effect of significantly reducing the melting temperature to 220-300°C.
- 2. Sealing temperature control was achieved by adjusting the amount of silver ion introduced into the glass structure.
- 3. Superior water/vapor resistance was achieved by reducing cations which easily bond with water molecules.
- 4. Features of the glass developed
- (a) Does not contain lead or halogens.
- (b) May be heated with various heat sources such as hot plates, infra-red lamps, various lasers, etc.
- (c) Able to be heated and used as a seal in atmosphere, vacuum or in nitrogen gas, due to a glass structure composed of only oxides.

#### Plan

The Hitachi Group will continue to actively pursue the development and practical application of new technologies to reduce environmental load.