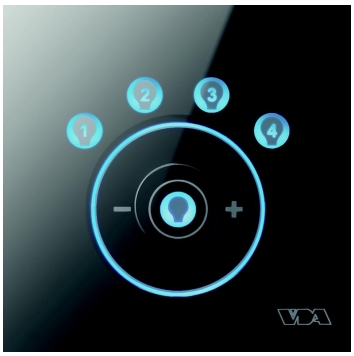
Smart materials

Smart materials in the form of metals, plastics, ceramics and liquids are being developed that are capable of reacting to specified stimuli such as:

1. A change in temperature
2. Electrical pressure
3. Magnetic field



Two examples of smart materials are:

1. Shape Memory Alloys (SMA) and
2. Shape Memory Polymers (SMP).

Both can change shape when heated to a specific temperature.

Shape Memory Alloys (SMA) are capable of exerting a force when a specific temperature has been reached. For this reason, they can be used in applications such as actuators that switch on other devices or induce mechanical motion.

Examples of the practical application of smart materials are in the production of heat sensitive spoons and in making the dismantling of products for recycling easier and cheaper.

Plastic spoons may be made from a temperature responsive polymer that changes colour above a specified temperature, thus indicating when food is too hot.

Designing for Active Disassembly using Smart Materials (ADSM) is to design and make products that will self-disassemble. Self-disassembly can be achieved by using smart materials in products that release components when a temperature change is induced. This triggers a change in the form of the smart material holding the components.

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