

# Use of 'SMART' and Intelligent Packaging



*Smart packaging increases adherence for the consumer*

**Active, Intelligent and Smart Packaging, these are all terms which are regularly banded around, but what exactly are they and how do they differ?**

To put it simply, Smart Packaging is Packaging that provides additional “Smart” functionality; Intelligent Packaging and Active Packaging are subgroups within Smart Packaging.

More specifically, Intelligent Packaging uses sensors, measuring devices or communication media to inform the consumer about a change in a product or to provide additional information. (Thermo-chromatic) inks which show if a product has been exposed to high temperatures are a

good example of intelligent packaging.

Active Packaging interacts with the product packs or consumers and has active functions above the passive functions of standard packs. Use of Modified Atmosphere Packaging to increase the shelf life of meat is an example of active packaging as it interacts with the product by controlling bacteria growth.

With the range of benefits that can be achieved through adoption, the Pharma industry is currently the fastest growing area of Smart Packaging consumption. A notable benefit is increased patient adherence (since non-adherence is currently a major concern, costing

up to \$300bn per year!). A growing, aging population and increased frequency of chronic diseases mean unintentional non-adherence is becoming a growing issue. In response to this, smart pill bottles have been developed which flash at set times to remind patients to take their medicines. Some go further and inform doctors or family members if drugs have not been taken, increasing doctor/patient communication, feedback and adherence levels.

There is also a significant growth in the number of temperature sensitive medicines which can become hazardous if certain temperatures are exceeded. Exact temperature control can be difficult; packs stored on one side of a lorry with the sun shining on it may easily be a few degrees warmer than those on the other side. Through use of sensors or (thermo-chromatic) inks, should temperatures during the shipping be exceeded it becomes extremely obvious that the drugs are unsafe and should not be used.

Although Pharma is seeing the greatest growth, the food and drink industries are currently the largest markets for Smart Packaging. With the amount of food waste each day reaching astronomical quantities (and becoming a growing concern to society,) the potential for active packaging to extend product life is vast. Preventing food waste for economic reasons is a key growth driver of Smart Packaging.



*The container integrates smart technology to help patient adherence*

Other drivers include technology development and decreasing costs of printed electronics. Not wishing to be left behind many companies are looking to implement Active and Intelligent Packaging solutions and we do have the capability to help you with this!

In fact, Smart Packaging growth is so rapid that fast forward 15 years... will we have become reliant on Smart Packaging to restock our fridge? Perhaps an RFID tag on a milk bottle cap will sense when it has been put in the recycling bin and will automatically reorder itself! After all, the Samsung Family Hub fridge is proof that the domestic technology is almost already there!

.....

.....



**“Solving your product and supply chain challenges through effective design and pragmatically engineered packaging solutions.”**

We are able to achieve this through a great team, with high levels of technical expertise and broad industrial experience. This wider experience allowing us to look at issues innovatively and from more diverse perspectives.

Our belief is that by innovating around your brief we are able to deliver excellence in thinking; our contributions to a number of patents bear testimony to that ability. As Packaging and Supply Chain experts we understand the diverse needs, and as a consequence see opportunity when others may not; driving efficiency, reducing costs and creating business benefit for you.

Our client base demonstrates that the combination of in-house expertise, our wider industry knowledge and the service we deliver is valued and that our clients can rely upon us to look after their reputations through great solutions that we can all take pride in.