



## **Storage Solutions: A Modern Approach to Bulk Material Management**

In the past, all that was needed to store materials was a vast open space where products could be piled high and left exposed to the elements. This simplistic approach was sufficient when the range of materials being stored was limited and their characteristics were more predictable. However, as time progressed, the types of materials requiring storage expanded, becoming more diverse and complex. As a result, the need for more sophisticated and precise storage solutions became apparent. Today, ensuring the safe and efficient storage of bulk solid materials, each with its own unique properties, requires a more technical approach to design and implementation.

The development of modern storage solutions has had to evolve to accommodate the wide variety of bulk materials now being handled, from powders and granules to more specialised substances. Materials such as powders, for example, have completely different flow characteristics based on their particle size, moisture content, or whether they are prone to binding together. Materials might also be sensitive to environmental factors such as temperature, humidity, or pressure. These variations demand tailored storage solutions that are specifically designed to meet the needs of the material being stored, while also addressing the environment in which they are kept.

To assist in overcoming these challenges, the SHAPA (Solids Handling and Processing Association) community has developed a wealth of resources that provide practical guidance and technical insight into the design of storage solutions. Their website offers a collection of downloadable technical papers, all free of charge, which cover a broad spectrum of topics essential for designing efficient and safe bulk material storage systems. Among these papers are in-depth discussions on the Benefits of Powder Characterisation, Ten Key Steps for Achieving Reliable Flow from Hoppers, and Achieving Reliable Flow from Existing Hoppers. Another essential resource is the Cost of Ownership paper, which offers valuable information on the long-term financial implications of different storage systems.

These comprehensive papers are not only valuable for designing new storage systems but also provide practical insights into retrofitting or optimising existing storage solutions. They outline effective strategies for ensuring that silos, bins, and hoppers are configured in ways that accommodate the specific characteristics of the materials they store. Furthermore, these resources take into consideration the environment in which these materials are being handled, whether it's a temperature-controlled setting, an outdoor environment, or a facility with potential safety hazards such as explosive materials or atmospheres.

The benefits of these storage solutions extend beyond just design considerations. The SHAPA papers also highlight various discharge aids and conveying solutions to ensure the successful



handling of bulk materials throughout the storage and handling processes. Whether the material in question is potentially explosive, cohesive, hygroscopic, friable, or sensitive to fluctuations in temperature or moisture, SHAPA members have the expertise to provide the right solution. With decades of accumulated experience and knowledge, SHAPA ensures that your storage systems are not only effective but also safe and reliable.

For those seeking further information, the SHAPA website [www.shapa.co.uk](http://www.shapa.co.uk) offers more in-depth resources, including an equipment finder that provides access to a wide range of products and services related to bulk material storage. The website also features contact details for direct inquiries, including the email [info@shapa.co.uk](mailto:info@shapa.co.uk), where experts can provide personalised advice and support tailored to your specific needs.

With well over forty years of technical, commercial, and legal expertise, SHAPA stands as the trusted authority in the field of bulk material storage. Their commitment to innovation and safety ensures that no matter the nature of the material you need to store, there is a comprehensive solution available to meet your requirements.