RAM SPREADERS





WHAT IS CONTAINERISED BULK HANDLING?

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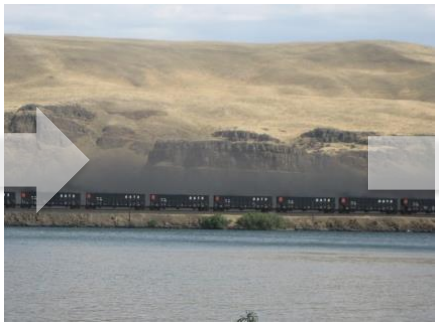
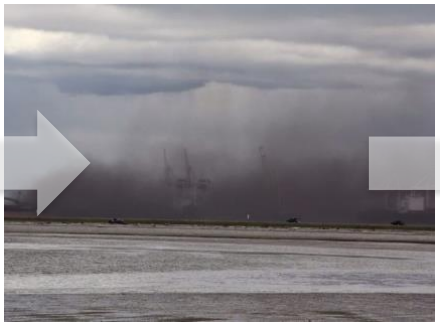
Traditional Bulk Handling – Material Loss

Material loss in the supply chain

Traditional bulk handling systems run a high risk of material loss during the handling process, from multiple transfer points, open wagons during transportation, open stock-piles and traditional ship loading.

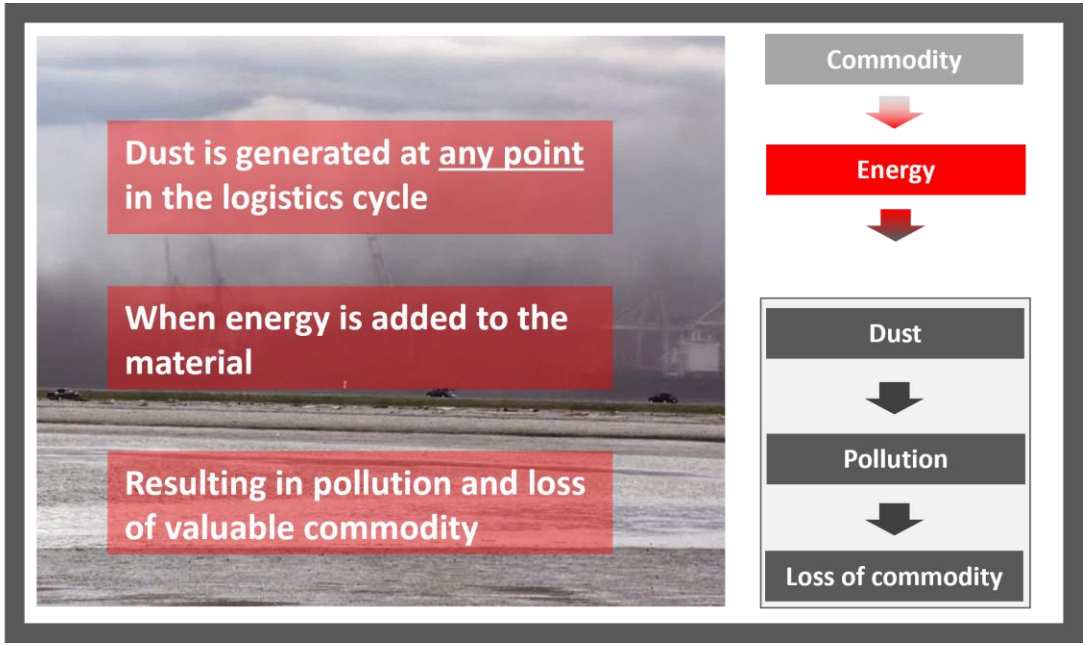
This is not only damaging to the environment, but also money blowing in the wind.

TRANSFER POINTS	OPEN WAGONS	STOCKPILES	SHIP LOADING
			

Traditional Bulk Handling - Pollutants

Harmful Air Pollutants

During the handling process dust is generated when energy is added to the material, resulting in harmful air pollution!



Traditional Bulk Handling – Health Risks

The dangers of regular exposure

Workers involved in day-to-day handling of certain types of bulk are exposing themselves to harmful airborne pollutants.

Over time, this can lead to serious respiratory problems that can result in lung diseases such as:

Silo-Filler's disease

Black Lung disease

Farmer's Lung disease

Manganese Dust Neurotoxin

So, what is Containerised Bulk Handling (CBH)?

CBH ECO FRIENDLY Solution

Usually referred to as CBH, it involves loading bulk materials into open-top sealed containers.

What are the containers used for?
The container are used as a mode of Transport | Storage | Unloading

How is the commodity unloaded?
With the help of a rotating (or tipping) spreader attached to the container's corner castings, it rotates the container 360 degrees through its longitudinal axis to fully decant the commodity.

CBH - Container Handlers

Sling and Chain Handler

A rudimentary entry-level sling and strap system for handling rear-door end tipping containers.

- It is time-consuming that requires high levels of manual handling of ropes and slings running the risk of Injury and respiratory issues for stevedores.

Tilting Frame

A fixed frame structure is typically seen at handling facilities.

- It unloads containers placed by the reach stacker by a hydraulic tilting frame, decanding commodities onto conveyors.

Tilting Spreader

Practical mechanical solution for handling rear-door containers.

- The connection between container and spreader by twistlocks, with a tilting mechanism capable of up to 45 degrees operated by hydraulics.

CBH - Container Handlers

Rotating Spreader

A specially designed spreader that rotates an open-top container through its longitudinal axis.

- Typically consists of an “inner” and “outer” frame.
- The rotating spreader connects to the container by Twistlocks
- The “inner” frame acts as the rotating device, rotating the container through a full 360 degrees.

For all types of crane

Some rotating spreader manufacturers provide a rotating spreader for all types of cranes, making it ideal for ports, terminals and handling facilities.

CBH - Types

Standard general-purpose containers

Consists of several methods of loading bulk, such as scrap steel, cotton or grain, into standard containers and shipping from the source to the end user.

This occurs due to the imbalance of empty container returns where cargo owners make use of low freight rates when returning containers, for example, when transporting.

Usually filled and emptied manually or by a tilting spreader with a trap-door container.

CBH - Types

Dedicated sealed open-top containers

In the past 10-15 years, a more engineered solution involving special purpose-designed bulk containers has been developed.

Used for high-value, dangerous or special handling requirements such as:

- Pit-to-ship operations
- Direct to end-user

CBH – Equipment

Containers

Transport

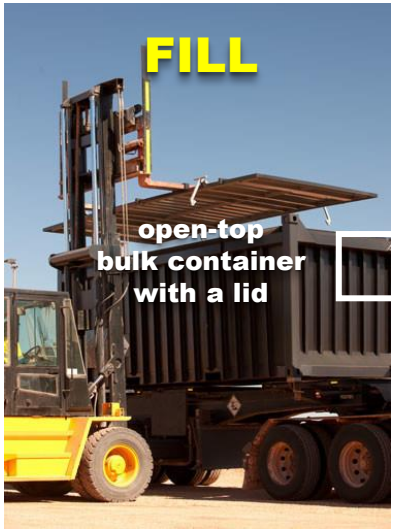
Rotating Spreader

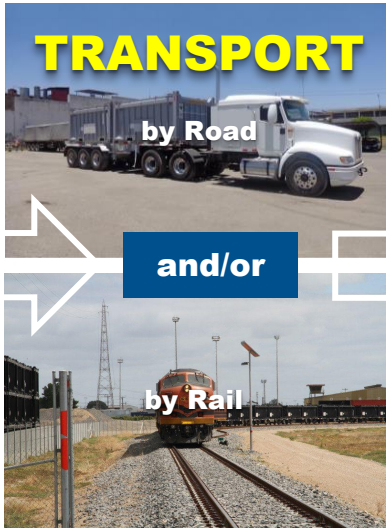
CBH – Handling Process

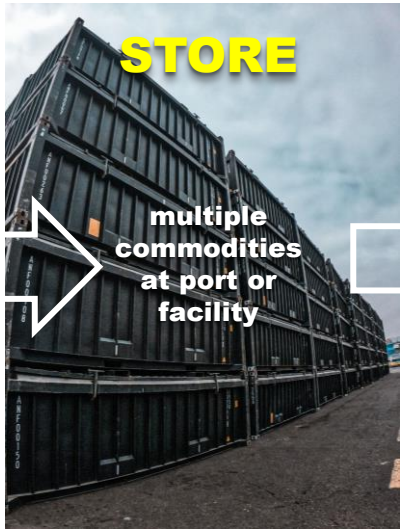
The handling process!

CBH follows a simple “**Fill & Seal** – **Transport** – **Store** – **Unload**” process for handling bulk.

Commodities can be transported by road, rail, or both (bi-modal), making it possible for remote mines or handling facilities to export by using existing road and rail networks.







CBH – Protecting Commodity & Environment

Lid and Mist!

By sealing the open-top container, the commodity only sees the light of day immediately before unloading.

Some CBH systems also include an automatic lid removal system and dust suppression system to add further protection to both the commodity and environment.

CBH - Users

Exporters are taking advantage of low-cost CBH

- Exporters looking to relocate cargo from remote areas to the port area, use CBH for long distance export routes using existing road and rail networks.
- Specialist cargo owners who need to reduce pollution, have valuable and/or special handling materials use CBH.

CBH - Container Types

From grains to precious metals

All dry bulk commodities can be handled from various types of CBH containers:

High Cube Containers
For grains, sulphur, urea and many other materials

Mineral Concentrate Containers
For copper, iron ore, zinc, gold, nickel and lithium concentrates.

Rear Tipping Containers
It has a removable lid and rear hatch, allowing it to be used with both a rotating spreader and a tilting spreader.

The container can be supplied with top roof hatches for loading from hoppers, smooth internal walls, and abrasion-resistant paint to ensure all commodities are decanted.

High-Cycle Containers
Multi-purpose container for very high payloads and high cycle operations. Designed to withstand thousands of loads in its lifetime, with loading rates of up to 1,200 tph.


High Cycle Container on Revolver


High Cube


Mineral Concentrate


Rear Tipping on Tilting spreader


Rear Tipping

CBH - Methods of filling containers

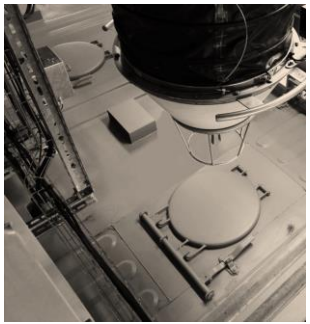
Existing equipment can be used to fill a CBH container

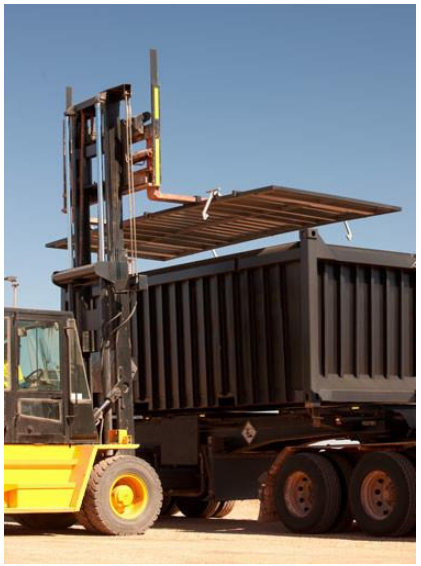
The removable lids of the containers have fork pockets, allowing existing equipment to be used to remove the lid without the need for specialist equipment.

The lid has an auto-latching system securing the commodity during transportation.

Filling the container
Done by:

- Traditional digger equipment
- Hopper into open-top container
- Shoot fed into special hatches





CBH - Track and Trace capabilities

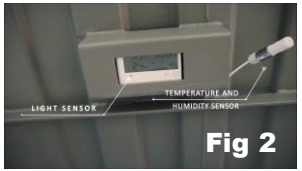
From source to destination

The CBH containers can be fitted with a radio frequency identification tag (RFID) on the lid's underside (fig. 1 & 2).

- RFID tracks and traces the commodity's journey from anywhere using a mobile device (fig. 3).
- An additional lockable keycard unit secures valuable commodities during transit (fig. 4).

Data logging
RFID tagging allows mines to store information such as the mineral grade and quantity in a database.

- This data handling system makes pricing for customers more straightforward, as grade quality and quantity remain the same during the handling and transporting.



Regulations

CBH is fully compliant to rules, guidelines for safety, environmental protection and efficiency in bulk handling.

International Maritime Organization (IMO) Regulations
Governs the safe carriage of solid bulk cargoes. Focusing on the prevention of hazards due to shifting cargoes, chemical reactions, moisture content.

Environmental Protection Agency (EPA) Guidelines
Clean Air Act (CAA) and Clean Water Act (CWA) regulates emissions and discharges from bulk handling operations to prevent air and water pollution.

Local Authority and Port Regulations
Often have their own specific regulations for bulk handling operations, including requirements for loading/unloading, material storage, emergency response, and environmental protection.

A decade of success

Over 10 years in service

From its initial deployment in Adelaide, the first CBH system is still operating today!

During a visit to the terminal, RAM commented: ***"The longevity of CBH operations can be seen at DPW Adelaide. It's a great case study for us to demonstrate the environmental benefits and excellent return on investment that CBH can offer."***

Award-Winning

CBH is a recognised bulk handling solution that has won 3 awards since its introduction:

Environmental Protection (2014)
Innovative Technology (2017)
Safety in Bulk Handling (2023)

CBH's ability to reduce pollution is a significant feature, making it an environmentally responsible choice for bulk handling solutions.

Its flexibility to integrate into current bulk handling logistics while protecting the health of workers further enhances its appeal.

Global Presence

With over 30 projects globally, working on all types of cranes and handling all commodities; the RAM CBH is currently the most successful CBH system.

CBH - Becoming a Popular Choice

CBH is known to be a “clean” bulk handling system, with many benefits:

Commodity Safe
Secures the commodity from source to destination.

Low Cost
No need for expensive fixed infrastructures, warehouses or stockpile space.

Environmental
Dust-free handling, with zero dust generated with an added dust suppression system.

Award-Winning
CBH is an approved and recognised bulk-handling solution
Since its introduction, CBH has won some impressive industry awards:

1. Innovation Technology Award
2. Safety in bulk handling Award
3. Environmental protection Award

No Contamination
Store multiple types of commodities together without the risk of cross-contamination.

The future in bulk handling