

High Containment in IBC Systems

Many process industries have a need to go beyond 'good housekeeping' standards for cleanliness and operate to a defined 'operator exposure limit' because of the nature of their product, which may be potent or toxic in nature. Containment is the challenge to design and operate production systems, which meet or exceed these limits.

Achieving specified containment is a combination of the right equipment, good facility and process flow design, good operational procedure, good cleaning and maintenance procedures.

The problem with IBC's...

- Achieving high containment levels in IBC systems is a real challenge because of the need to connect and disconnect the bin before and after filling and emptying operations;
- Once product has been transferred and the IBC is disconnected, there is the problem of dealing with dust on those surfaces that have been exposed;
- The efficiency and repeatability of the IBC coupling mechanisms is critical to preventing leakage during transfer of product;
- Methods of containment have to work in conjunction with any other methods used to assist in transfer. For example, a device which suffers damage or wear due to vibration is of no use if such methods are essential to promote material flow;
- IBC containment equipment needs to be durable and capable of repeated use in a real industrial environment, without loss of performance. Systems that require sophisticated, precision IBC handling can add excessive capital costs and ongoing calibration costs to a project and are more prone to failure in the longer term;
- Systems need to be fully cleanable, either manually or automatically, depending on the application. Thus, devices that have sliding or rotating joints are exposed to risk of product migration into regions that cannot be washed and dried effectively;
- The need for full cleanability must not compromise the need for containment. It is not acceptable to break containment limits while dismantling or moving equipment for cleaning;

The solution:

- Matcon have developed equipment, systems and operating procedures to provide very high levels of containment. These systems have been independently tested, proven and adopted in several pharmaceutical and chemical industries;
- Our IBC filling and discharge systems, which already provided the best standards of general cleanliness on the market, have been further developed to provide precision interfaces with minimum contaminated surfaces;
- Strategic use of air washing and extraction, before breaking the interface connection, guarantees the best possible results;
- Hygienic design allows for full CIP without disconnection;
- Full scale testing facilities allow our customers to witness performance and quantify all the risk issues mentioned above;

Specification:

Containment is a topic that is very widely misunderstood in the world of IBC's for solids handling. Often this results in poor or incomplete specification. If a User Requirement Specification for containment is too vague and wide, this can produce disappointment or failure to meet the users expectations and achieve 'acceptance' on site. If a URS is needlessly onerous, this can eliminate evaluation of practical, appropriate industrial technology.

When evaluating and specifying containment objectives for solids handling projects, it is important to do so in conjunction with all the other key performance objectives, assigning correct priorities. Above all it is essential to carry out full scale tests before accepting any system, in order to see evidence of how systems can perform with real (or representative) product.