



BSI Standards Publication

Use of plugs of bulk material in screw conveyors and product receivers for explosion isolation

National foreword

This Published Document is the UK implementation of CEN/TR 17838:2022.

The UK participation in its preparation was entrusted to Technical Committee EXL/23, Explosion and fire precautions in industrial and chemical plant.

The following technical report provides guidance on the efficacy of screw conveyors and material chokes that are required to act as explosion isolation devices.

It must be understood that if used to prevent explosion propagation, the transmission of ignition sources from upstream may still occur. It must also be understood that in operation, they can also create ignition sources due to long-term product compaction and exposure to frictional heating which, due to the very specific nature, is typically not covered by standard assessments.

It is therefore advised that if such process equipment is used to prevent explosion propagation that expert advice is obtained to ensure that it will not create an ignition source and the overall reliability is suitable for the risk.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Use of plugs of bulk material in screw conveyors and product receivers for explosion isolation

Utilisation des bouchons de matériaux en vrac dans les convoyeurs à vis et les bacs de réception à des fins d'isolation contre les explosions

Schneckenförderer Explosions-Entkopplungssysteme

This Technical Report was approved by CEN on 13 June 2022. It has been drawn up by the Technical Committee CEN/TC 305.

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European foreword

This document (CEN/TR 17838:2022) has been prepared by Technical Committee CEN/TC 305 “Potentially explosive atmospheres - Explosion prevention and protection”, the secretariat of which is held by DIN.

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Introduction

Screw conveyors are mechanical devices for the continuous movement, discharge or variable rate feeding of bulk materials in form of powder, granules or grain. They are often used horizontally or at a slight incline to discharge or feed silos, storage bins, filter units, mills or other equipment in many bulk handling industries.

Product receivers are silos, bins and hoppers used for temporary storage of bulk materials. The design of product receivers is determined by parameters such as storage capacity, throughput and overall height but also products properties such as powder cohesion, coefficient of sliding friction and permeability.

Both screw conveyors and product receivers can under certain conditions act as explosion isolation devices/systems in combination with the bulk material being handled by these pieces of equipment. This document presents the aforementioned conditions that are necessary to ensure explosion isolation. These conditions include dust properties and dust explosion properties, dimensions of the equipment and minimum requirements regarding the dimensions of the bulk material plugs.