Instructions for the use of Dectyl test cards

Introduction

Many food manufacturers have installed metal detectors on their process lines. Testing procedures and a monitoring system for metal detectors are integral to product quality management systems (ISO 9000), Hazard Analysis Critical Control Points (HACCP) and Good Manufacturing Practice (GPM). The manufacturers of the detector equipment support testing and monitoring procedures carried out with test cards, documentation and training. Only authorized personnel are allowed to specify or change the settings of metal detectors. To optimize protection against product contamination from metal fragments, the performance of detector systems is tested before and during production runs.

Up until now, plastic contamination from, for example, fragments of conveyor belts could pass through a metal detection system without being noticed. With the new Dectyl metal detectable range of synthetic belts and accessories from Ammeraal Beltech, this is no longer the case. The Dectyl metal detectable belt range, together with the Dectyl test cards, make it possible to detect even small fragments of conveyor belts by using a metal detection system.

The test cards

Dectyl test cards from Ammeraal Beltech have been developed for use in belt conveyor metal detection systems. With these test cards, one can prove the detectability of Dectyl material by a metal detector system, operating at its normal settings for a particular application at any given food manufacturer. The Dectyl test cards are not meant to be used to recalibrate the settings or the monitoring system of the metal detection system in any way and are not intended to replace the test cards from the manufacturer of the detector equipment. The sole purpose of the Dectyl test cards from Ammeraal is to prove and monitor the detectability of the Dectyl belts and their accessories. Furthermore, the test cards from Ammeraal Beltech should only be used to test and monitor the detectability of Dectyl belts and accessories.

There are two types of Dectyl test cards. One is test cards with samples of Dectyl belt material, the other is Dectyl test cards with samples of accessory material (solid Dectyl material). Since the samples of solid Dectyl material (accessories) contain more metal than the test cards of Dectyl belt material, Detection of the test cards from solid Dectyl material will be easier to detect.

The test cards consist of a small circular sample of the solid cross section of Dectyl material embedded into a paper card. On the card is written the size (diameter) of the circular belt sample, its item code and/or the item description of the Dectyl material. The card is laminated, so the belt material is sealed inside plastic foil. The test cards come in a hard plastic case. To prevent damage, the cards should be kept inside the hard plastic case whenever they're not in use.
The Dectyl test cards are available in six different sizes of coin shaped samples:
∅ 3mm, ∅ 5mm, ∅ 7mm, ∅ 10mm, ∅ 15mm and ∅ 20mm.

Each test card consists of:

- A circular sample of detectable belt material
- Printed information that includes:
  - the diameter of the circular sample
  - the item number and item description of the belt with which the test card can be used

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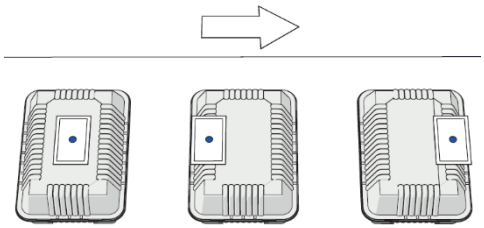
How to use the test cards

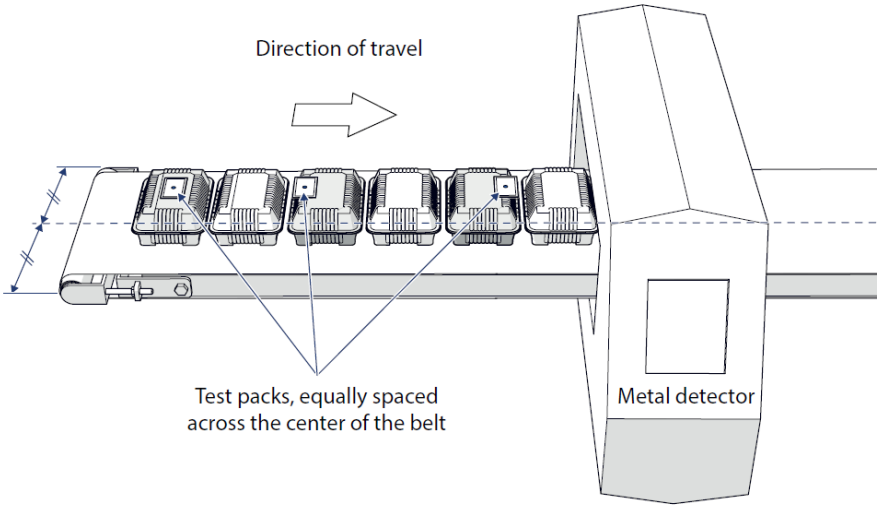
The Dectyl test cards should be used as follows:

- Take a test card out of the hard plastic test card case. Start with the test card with the larges belt sample.
- Visually inspect the test card for any damage of flaws.
- Damaged test card should be replaced.
- Prepare a test pack using a representative packed product. Always use "fresh" products to make a sample pack. Aged products are not representative, and may affect detectability.
- Check that the packed product being used is free of contaminants.
- Place a test card flat down on top of the sample product pack and pass it through the metal detector 3 times:
  1st time on the front side of the product,
  2nd time in the middle,
  3rd time on the back side. (See illustration)
- The orientation of the test card will not affect its detectability.
- Make sure that no test packs or loose test cards find their way into the regular product stream, particularly those that weren't successfully detected and rejected.

How test cards should be placed on sample packs:



How test packs should be placed on the belt:



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Placement of the sample packs

If you have three test cards of the same sample size. You can combine the three above passing's through the metal detector into one. In that case the test samples must be placed at least 500mm from the metal detector, in the lateral middle of the conveyor belt, and travel though the middle of the aperture of the metal detector. The space between the test samples must be the same as the space between products in a normal production run. The speed of the conveyor belt must be set to the same speed as during a normal production run.

Frequency of testing

Ammeraal Beltech advises end users to make testing with the Dectyl test cards part of the test procedure already in place for the detection equipment. This way, the tests are performed and documented in a uniform manner. End users should run sample packs with Dectyl test cards in the same way (at the same time and as often) as the sample packs with the test cards from the detection equipment manufacturer.

Most manufacturers of detection equipment advise testing the detection system:

- At the start and finish of daily production/shifts.
- At regular intervals during a production run.
- When there is a change in product or in production batch.
- When the detection equipment settings have been changed.
- After the detection equipment has experienced downtime.

Successful test

The number of passes through the detection system of the sample packs with the Dectyl test card should be the same as the number of passes for the sample packs with the test cards from the detection equipment manufacturer; this is usually 3 to 5 times. A test can only be considered successful when all test packs are detected and rejected at every pass through the detection system. Should a test not be successful, all the products produced since the last successful test must be put in quarantine so that they can be re-screened for metal or belt fragments.

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Test script

1. When starting a test at an EU, **don't change the settings** of the MD-equipment.
2. Start the test with **verification** of the settings of the customer with the **OEM metal test cards with metal sphere** from the customer, for example sphere Ø 1.5 mm stainless steel. Mind that the customer might have different settings when producing different products on that same MD-equipment.
3. Test with our Dectyl test cards, start with **test card from solid Dectyl material** coin Ø 20 mm.
4. If you have detection test with the test card with the next smaller diameter.
5. Until you do not have detection anymore.
6. Test with our Dectyl test cards, start with **test card from Dectyl belt material** coin Ø 20 mm.
7. If you have detection test with the test card with the next smaller diameter.
8. Until you do not have detection anymore.
9. Put in your report:
    a. The detection level of the **customer OEM test card with the metal sphere**, for example: a sphere Ø 1.5 mm stainless steel was detected successfully.
    b. The detection level of the **AB test card from solid Dectyl material**, for example: a coin of Ø 10 mm accessory material was the smallest to be detected successfully.
    c. The detection level of the **AB test card from Dectyl belt material**, for example: a coin of Ø 20 mm accessory material was the smallest to be detected successfully.