

WHITE PAPER TY-RAP DETECTABLE CABLE TIES

Ty-Rap® detectable cable ties

Made from material that may come into direct contact with food

Ty-Rap®



Ty-Rap® detectable cable ties and accessories from ABB incorporate a unique compound that can be detected by x-ray equipment, metal detectors and visual inspection equipment. The products are particularly recommended for applications in food & beverage, pharmaceutical and other contamination-sensitive industries. The material used to produce these cable ties has recently been successfully tested for direct food contact.

The food and beverage industry is subject to ever-increasing scrutiny and regulation concerning the cleanliness of production and storage areas. Detectable cable ties are particularly recommended in food processing industries where cable tie installation remnants (trimmings) are not permitted in the finished product.

The main applications for detectable cable ties are pharmaceutical production, chemical and compounds manufacturing, tire and airbag manufacturing and any other contamination-sensitive industry using detection equipment, but mainly the food and beverage processing industry. ABB's Ty-Rap® detectable cable ties and accessories help to reduce the risk of product contamination. Ty-Rap® detectable cable ties are available in two versions: Nylon detectable cable ties and polypropylene detectable cable ties. These cable ties incorporate a unique compound that can be detected by X-ray equipment, metal detectors and visual inspection equipment.

Another important aspect of the Ty-Rap detectable cable ties is that they aid compliance with the HACCP EU Directive. The HACCP (Hazard Analysis Critical Control Points) directive is a systematic preventative approach to food safety that addresses physical, chemical and biological hazards as a means of prevention rather than finished product inspection.

The Ty-Rap® detectable cable ties and accessories made of detectable nylon (NDT) and polypropylene (PDT) comply with FDA regulations, which means the products are intended for use in the proximity of food processing, handling and packaging operations.

Today, customers are becoming increasingly demanding and are asking if Ty-Rap® cable ties can come in direct contact with food. As a result of such requests, ABB decided to do some food migration testing to obtain greater clarity concerning this feature.



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Ty-Rap® cable ties migration testing at an accredited laboratory

Migration testing of the material used to produce Ty-Rap® detectable cable ties has been conducted at an accredited laboratory in Europe. The material to produce Ty-Rap® polypropylene and nylon detectable cable ties in various sizes and colors has been tested as follow:

The migration behavior of all plastic materials intended to come into contact with food has to be tested in accordance with the Belgian legislation RD 03/07/2005 and amendments, the European Regulation No 1935/2004 and the European Regulation No 10/2011 and amendments. The food contact side of the test specimens was brought into contact with simulants using immersion.

In Europe “food contact for plastics” is covered by the “European regulation No 10/2011 on plastic materials and articles intended into come in contact with food”. This regulation is also known as the “plastic regulation”.

Ty-Rap® detectable cable ties are not intended to come into contact with food, but there is no specific regulation for plastic material that is not intended to come into contact with food. For that reason we have taken the decision to have the material used to produce our detectable cable ties tested according to the plastic regulation.

Materials and articles intended to come in direct contact with food need to comply with several European and national laws and regulations regarding food safety. These food contact materials may not transfer their constituents to food in quantities which could endanger human health or

bring about an unacceptable change in the composition of the food or deteriorate the food's organoleptic characteristics.

The main control parameter is the food migration testing on the material which is a measure for the inertness of materials and articles. Depending on the intended use (type of foodstuff, contact time and temperature), a simulation test is set up to determine overall migration.



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01 In Europe, “food contact for plastics” is covered by the “European Regulation No. 10/2011 on plastic materials and articles” from the European Commission in Brussels.

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02 Ty-Rap® detectable cable ties can be detected by nearly all commonly used metal detectors.

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— Ty-Rap® detectable cable ties have been tested and are suitable for long-term contact with all kinds of foodstuffs (PDT) and fatty foodstuffs (NTD).

Migration = net mass transfer of compound from packaging into food

Packaging materials are never 100% inert, and it's for this reason that migration testing is needed. For that testing, food simulants are used to mimic food characteristics. In accordance with European Regulation 10/2011 and amendments, the following simulants and test conditions are selected to determine the global migration:

- Simulant A: 10% ethanol – aqueous foods
- Simulant B: 3% acetic acid – acidic foods
- Simulant D2: vegetable oil – fatty character of foods
- Those 3 simulants together cover all kinds of foodstuffs
- Testing condition 10 days at 40°C (testing condition D2)
- The test method was based on EN 1186-1, EN 1186-2 and EN 1186-3

Net mass transfer of the plastic or compound – in this case Ty-Rap® detectable cable ties – from material/ cable tie to simulants will indicate whether there is food contamination or not. Migration per simulant must be lower than 10mg/dm². The maximum limit for the overall migration is 10mg/dm² or 60mg/kg of food..

The results of this testing at the accredited European laboratory are as follow:

Ty-Rap® polypropylene detectable cable ties

Based on the results obtained from the tested material, it can be concluded that the material tested, used to produce polypropylene detectable cable ties (NDT) is suitable for long-term contact with all kind of foodstuffs.

Ty-Rap PA 6.6 detectable cable ties

Based on the results obtained from the tested material, it can be concluded that nylon detectable cable ties (NDT) are suitable for long term contact with fatty foodstuffs.

Based on these results, food and beverage manufacturers can now specify the use of detectable cable ties for long term contact with all kind of foodstuffs (PDT) and fatty foodstuffs (NTD) throughout their facility, safe in the knowledge that they will not only benefit from the flexibility and durability of Ty-Rap cable ties, but from a material that will not contaminate their food process.