# Product Specifications

**CT1CT | Revised February 2019**

**Product Name:** BST Metal Detectable Cable Ties

**Product Description:** BST metal detectable cable ties feature a food safe metal additive, dispersed evenly and completely throughout the entire polyamide 6.6 body of the cable tie. These cable ties have an operating temperate of -40°C to 85°C, and can be used as part of a HACCP process or BRC procedures. These cable ties come in a standard colour of blue, making them visually detectable, further reducing food contamination risks.

These cable ties have been specifically manufactured for the food and pharmaceutical processing industries, using only food contact approved materials. Even small pieces of these ties can be detected by correctly calibrated and tested in line metal detection systems. BST metal detectable cable ties are ideally suited for the installation of cabling in and around production areas.

**Product Advantages:**

- Detectable by conventional metal detection systems
- Displays a use of “All due Diligence” in preventing contamination
- Blue colour for easy visual identification
- Food contact approved material
- High chemical resistance
- Floats in different liquids
- Highly resistant to corrosion

**Product Variations:**

| Product Code | Dimensions (W x L) | Batch Quantity | |
|---|---|---|---|
| CT1CT18RPMB | 2.5mm x 100mm | 100 Pack | |
| CT1CT30RPMB | 3.5mm x 150mm | 100 Pack | |
| CT1CT50RPMB | 4.6mm x 200mm | 100 Pack | *(Standard)* |
| CT1REK2MPMB | 4.6mm x 250mm | 100 Pack | *(Releasable)* |
| CT1CT50LPMB | 4.7mm x 380mm | 100 Pack | *(Long)* |
| CT1CT120RPMB | 7.6mm x 380mm | 100 Pack | *(Wide)* |

| | |
|---|---|
| **Batch Quantity:** | Pack of 100 |
| **Batch Weight:** | 0.300kg approx |
| **Colour Availability:** | Blue |
| **Product Material(s):** | Polyamide 6.6 with food safe metal additive (PA66MP) |
| **Flammability:** | UL94HB |
| **Operating Temperature:** | -40°C to 85°C |

### Guidance advice for the storage and usage of PA66 cable ties

Most cable ties are manufactured using Polyamide (PA66) material. This material has many beneficial properties and, with the addition of various additives, the properties of products manufactured with it can be adapted to suit a wide variety of applications.

PA66 material is hygroscopic – depending upon the environment that it is subjected to it will absorb moisture from or release moisture to the atmosphere. The mechanical properties of this material are significantly affected by the amount of moisture it contains – particularly flexibility and tensile strength. Moisture acts as a plasticizer in this material – effectively making it tougher and more pliable.

In order to successfully mould with PA66 it must first be dried. Consequently, immediately after moulding, cable ties are dry and tend to be brittle. They are then packed in sealed plastic bags together with controlled amounts of water. The cable ties absorb the moisture over a period of time this process is known as conditioning, and once conditioned they are tough and pliable. The time taken for cable ties to fully condition depends upon the surrounding temperature (the lower the temperature, the longer the conditioning time) and whether or not the cable ties also contain additives such as colourants, UV inhibitors, impact modifiers and flame retardants – such additives will either lengthen or shorten the conditioning time. As an example, the flame retardants used in V0 cable ties will cause significant acceleration in the moisture absorption and moisture release rates and consequently the storage and installation conditions of V0 cable ties should be carefully monitored and controlled.

Once the cable ties are removed from the plastic bags they will quickly be affected by the surrounding atmosphere. If the atmosphere is dry (low relative humidity) they will release moisture to the atmosphere, becoming dryer and less pliable / more brittle. The rate at which moisture is lost in a dry atmosphere is accelerated if the temperature is hot (above 25 degrees centigrade) or cold (below 10 degrees centigrade).

It is important to note that the plastic bags in which the cable ties are packed will delay the release of moisture, but they are not vapour barriers and will not prevent the loss of moisture in the longer term. If cable ties are stored in very dry conditions they will release moisture even when they are kept in sealed plastic bags.

Dry cable ties will have a tendency to be brittle during installation – this is the time at which they undergo the most extreme stresses. Once they have been applied changes in their mechanical properties resulting from changes in moisture content are not of negative influence to the application of the cable ties.

| **Properties** | **Typical Results** | **Test Method** |
|---|---|---|
| Colour | Blue | - |
| Tensile Strength | 65 MPa | ISO 527 |
| Elongation at break | 18% | ISO 527 |
| Tensile Modulus | 2600 MPa | ISO 527 |
| Flammability | HB | UL94 |
| Resistance to<br><br>UV<br>Oils & greases<br>Solvents<br>Petrol | <br><br>Limited<br>Very good<br>Good<br>Very good | |
| Heat deflection temperature @ 1.8MPa | 70°C | ISO 75/f |
| Density | 1.2 g/cm3 | ISO 1183 |

## FDA Standards Compliance

I. These products made of metal detectable polyolefin and nylon compounds are intended for use in the proximity of food processing, handling and packaging operations. In addition, these products are used for cable management on food processing and packaging equipment, and inside electrical control panels found in food processing and packaging environments.

II. Subject to the provisions of clause III below, we declare that upon manufacture these products comply with the following composition, additives and properties standards required by the United States Food & Drug Administration ("FDA") as specified under Title 21 of The Code of Federal Regulations (Ch1 Edition 4-1-99, the "CFR") and may be used in indirect food contact applications:

Section 184 CFR – Direct Food Substances Affirmed as Generally Recognised as Safe (GRAS)
Subsection 177.1500 CFR – Indirect Food Additives – Nylon Resins
Subsection 177.1520 CFR – Indirect Food Additives – Olefin Polymers
Subsection 177.1350 CFR – Indirect Food Additives – Ethylene vinyl acetate copolymers
Subsection 178.3297 CFR – Indirect Food Additives – Colorants for Polymers
Subsection 178.2010 CFR – Indirect Food Additives – Antioxidants and/or stabilisers for polymers
Subsection 170.39 CFR – Threshold of Regulation for Substances Used in Food Contact Articles
**The following restrictions have to be observed for Polypropylene products:**
The product may only be used according to conditions of use C-H of FDA 21 CFR 176.170(c) table 2
**The following restriction has to be observed for PA66 products:**
The product may only not be used in contact with alcoholic beverages (Food Types VI-A and VI-C according to 21 CFR 176.170(c) table 1).

III. This statement of compliance applies to Products supplied in original form without subsequent modification. Since conditions of use/application of Products are outside our control, we give no guarantees, warranties (express or implied) and assume no liability whatsoever for any loss, damage or expense arising from or in connection with the use of this information.

## Declaration of Compliance

I. These products made of metal detectable nylon (PA66) compounds are intended for use in the proximity of food processing, handling and packaging operations. In addition, these products are used for cable management on food processing and packaging equipment, and inside electrical control panels found in food processing and packaging environments.

II. Subject to the provisions of clause III below, whilst these products are not intended to come into direct contact with food, we declare that these products may be used as food contact articles according to:

**Regulation (EC) No 1935/2004**
These products follow good manufacturing principles (**gmp**) according to **Regulation (EC) No 2023/2006**

**Regulation (EC) No 10/2011** (as amended by Regulation (EU) No **2015/174**):
The monomers as well as the other starting substances, additives and polymer production aids in the manufacture of these products are listed in annex I (Union list) with the following specific restrictions:
**- 1.6-hexamethylene-bis(3-(3,5-di-tert-butyl-4-hudroxyphenyl)propionamide): SML = 45 mg/kg**
- Zinc oxide: SML = 25 mg/kg expressed as zinc
- Acrylic acid, n-butyl ester: SML(T) = 6 mg/kg expressed as acrylic acid
- Methacrylic acid: SML(T) = 6 mg/kg expressed
- Copper: SML = 5 mg/kg
The meanings of the used abbreviations are:
SML = specific migration limit in food or in food stimulant

The general specific migration limit of 60 mg/kg according to Regulation (EU) No 10/2011, article 11 (2) and the overall migration limit of 10 mg/dm2 according to article 12 (1) have to be observed.

This material contains dual-use additives, which are not subject to a restriction.

The pigments used for colouration comply with the requirements of the European Resolution **AP (89) 1** or the German Recommendation **IX** of **BfR (Federal Institute for Risk Assessment).**

This statement of compliance applies to Products supplied in original form without subsequent modification. Since conditions of use/application of Products are outside our control, we give no guarantees, warranties (express or implied) and assumes no liability whatsoever for any loss, damage or expense arising from or in connection with the use of this information.
The suitability of the products for application concerned, including their effect on the smell and taste of the contents and the observance of the given limitations (for example overall migration, specific limits and other analytical requirements) must be checked in each case by the user.

**Metal Detectability**

BST metal detectable cable ties contain an evenly dispersed metal additive. Subject to correct calibration of metal detection / x-ray inspection systems, this product should be fully metal detectable and x-ray visible. Detectability performance will vary based on, but not limited to the following factors:

- Detector Calibration Levels
- Food Product Type (E.g. Wet, Dry, Frozen, Liquid)
- Aperture Dimensions
- Contaminant Orientation

For this reason BST recommend that all our products be thoroughly tested on your metal detection systems by a trained and certified professional. It may be the case that your equipment needs to be recalibrated in order to reliably detect this product and its fragments. Such a professional should be available by contacting the manufacturer of your metal detection system.

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**DISCLAIMER**