ALTEC
INDUSTRIAL IDENTIFICATION

Technical datasheet

AR-10

RESSIN INK RIBBON

Description

Maximum abrasion resistance assures lasting variable barcodes and text. Full resin ribbon bonds to a variety of high-end synthetics, providing excellent scratch and smudge resistance. Image quality is unsurpassed, especially crisp for high-resolution output required for small text and 2D barcodes.

Formulation	Resin
Film thickness	4.5 Microns
Total thickness	6.2 Microns
Transmission density	1.00 MacBeth Scale
Ink Melting Point	110°C / 230°F
UL and CSA	Avery Fasson: UL MH17205, CSA 97198 FLEXcon: UL MH16635, CSA 99214 3M: UL HM16411
Typical compliance	• REACH – SVHC Free • RoHS • FDA GRAS Recognized • FDA 21CFR175 • ISEGA • Halogen Free

Benefits

- UL/CSA Recognized on Specific Substances
- Excellent Mechanical Durability
- Good Resistance to Typical Chemicals
- Very Dark Black Images with Exceptional Sharpness
- Prints on a Wide Range of Synthetic Receivers
- Anti-Static Formula and Backcoat Extend Printhead Life

Recommended stocks

- Top-Coated and Print-Treated Polyester
- Polyimide Films
- Polypropylene
- Polyethylene
- Vinyl
- Nylon

Imaging characteristics

Printer	Print speed	Energy range	Image darkness	Scratch/Smudge	Chemical
Flathead	6 IPS	Upper	> 2.2 RD (densitometer)	Highest resistance	Moderate resistance

RoHS Compliance

ALTEC industrial idenfitication B.V. reviewed the belowlisted finished ribbons with regards to compliance with the Europan Union's ("EU") directive 2002/95/EC, Restriction of Use of Hazardous Substances ("RoHS"), the updated RoHS Directive (2011/65/EU) known as RoHS 2 and its amendment to Annex II (EU/2015/863), Korea's Resource Recycling of Electrical and Electronic Equipment and Vehicles, and similar legislation that may be adopted by other countries. ALTEC's listed products are in compliance with the RoHS directive based on a review of the information.

ALTEC's statement clarifies that the following product AR-10 complies with the udated EU RoHS directive, which became effective on June 4, 2015, and the Korean RoHS which became effective on January 1, 2008. This EU and Korean directives state that all new electrical and electronic equipment put on the market within the EU member states and Korea, must not contain certain hazardous materials:
mercury, cadmium, lead, hexavalent chromium, PBB, PBDE flame retardants, DEHP, BBP, DBP, and DIBP.

This statement also notes that these ribbons do not contain tetrabromobisphenol A (TBBP-A).

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Halogen-free

ALTEC industrial idenfitication B.V. confirms that the following products are halogen-free and do not have chlorine, bromine, iodine, or fluorine in the raw ingredients:

- AR-10

The raw materials used in the manufacturing of these products are all TSCA listed. There have been no intentional additions of these listed materials. The finished ribbons are considered articles when sold.

Note that our compliance statement is based on a review of the available MSDS/SDSs for the raw ingredients associated with our finished products.

Safety data

Section 1 *Product identification and general information*

Manufacturer:	ALTEC industrial identification B.V.
Product Information:	+31(0)78 615 20 33
Product Numbers:	Black Thermal Transfer Ribbon (TTR)
Chemical Name:	Black TTR Ribbon
Date SDS Prepared:	23 - 11 - 2016

This SDS has been prepared for the purposes of Hazard Communication, under 29 CFR 1910.1200.

Section 2 *Product identification and general information*

This product is not considered hazardous to man or the environment under normal conditions of use. These products are considered “articles” as defined by OSHA 29CFR 1910.1200, Canadian WHMIS and the EC Directives.

GHS Label Elements

Pictograms:	None
Signal Word:	None
Hazard Statements:	None
Precautionary Statements:	None

Potential Health Effects

Inhalation:	No significant irritation other than possible mechanical irritation.
Ingestion:	No significant irritation other than possible mechanical irritation.
Skin Contact:	No significant irritation other than possible mechanical irritation.
Eye Contact:	No significant irritation other than possible mechanical irritation.
Medical Conditions Aggravated by Exposure:	None currently known.

Section 3 *Composition/Information on Ingredients*

Contents	Percent by weight	CAS No.	OSHA PEL	ACGIH TLV	LISTED CARNIOGEN (IARC/OSHA/NTP)
Modified Hydrocarbon Waxes	10% - 15%	Various			No
Synthetic Waxes	10% - 15%	Proprietary			No
Acrylic Resins	5% - 10%	Proprietary			No
Carbon Black	5% - 10%	1333-86-4	3.5 mg/m^3	3.5 mg/m^3	IARC 2B (See Section 11)
Polyethylene Terephthalate Film	70% - 80%	25038-59-9			No

Section 4 *Composition/Information on Ingredients*

Eye Contact: Flush with copious amounts of water for at least 15 minutes. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. If irritation develops, seek medical attention.

Skin Contact: Wash thoroughly with soap and water. If irritation develops, seek medical attention.

Inhalation: Remove to fresh air. If breathing is affected, seek medical attention.

Ingestion: If ingested, get medical assistance.

Section 5 *Fire-Fighting Measures*

Flash Point: Not Applicable

Extinguishing Media: Water spray, foam, and dry chemical

Special Fire Fighting Procedures: Wear normal fire fighting protective equipment, such as SCBA, in buildings or confined spaces.

Unusual Fire and Explosion Hazards: No special requirements. Irritating and toxic substances may be emitted upon combustion, burning, or decomposition of the ribbon.

Section 6 *Accidental release measures*

Spill Procedure: Contain and remove by mechanical means. Dispose in accordance with Federal, State, and Local regulations.

Section 7 *Handling and storage*

There are no special storage requirements.

Section 8 *Exposure controls / Personal protection*

Ingredients	CAS No.	OSHA PEL	ACGIH TLV
Carbon black	1333-86-4	3.5 mg/m^3	3.5 mg/m^3

Eye Protection: It is a good industrial hygiene practice to minimize eye contact. Safety glasses must meet ANSI specifications.

Respiratory Protection: No special respiratory protection required.

Ventilation: Provide sufficient mechanical ventilation.

Protective Clothing: Use protective gloves and clothing appropriate for the risk of exposure.

Work and Hygienic Practices: Eye wash and shower facility should be available. Practice good hygiene and maintain a clean work environment.

Section 9 *Physical and Chemical Properties*

Appearance: Product consists of polymers and clay coated on plastic film and wound onto a plastic or cardboard core.

Section 10 *Stability and reactivity*

Stability:	Stable
Conditions to Avoid:	None
Incompatibility (materials to avoid):	None known.
Hazardous Polymerization:	Will not occur.
Hazardous Decomposition Products:	Produces normal products of combustion.

Section 11 *Stability and reactivity*

No toxicity studies have been conducted on this product. As with all materials for which test data are limited or do not exist, caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

Carbon Black: In its Monograph Volume 65, issued in April 1996, the International Agency for Research on Cancer (IARC) re-evaluated carbon black and concluded that, “there is inadequate evidence in humans for the carcinogenicity of carbon black”.

The carbon black used contains less than 0.1% of adsorbed PAHs (polynuclear aromatic hydrocarbons). In non-adsorbed form, some PAHs have been found to be carcinogenic in animal studies. No correlating carcinogenic effect, however, has been observed in humans due to exposure to carbon black. There are still ongoing scientific discussions on the relevance of tumorigenic response in rats to inorganic insoluble particles like carbon black. Many inhalation toxicologists believe that the tumor response observed in the referenced rat studies is species specific and does not correlate to human exposure. However, the IARC evaluation in Monograph 65 concluded that there is “sufficient evidence in experimental animal for the carcinogenicity of carbon black”.

Section 12 *Ecological Information*

Environmental Fate: No data available at this time.

Section 13 *Disposal Considerations*

Waste Disposal Method: Dispose of product in accordance with local, state, and federal regulations.

Section 14 *Transport Information*

US DOT or IATA/ICAO does not regulate these products as hazardous materials for transportation.

Section 15 *Regulatory Information*

Toxic Substances Chemical Inventory (TSCA): This product (and/or all of its components) is in compliance with the U.S. EPA TSCA.

Section 16 *Other Information*

HMIS Hazard Rating:	Health – 1; Fire – 0; Reactivity – 0
NFPA Hazard Rating:	Health – 1; Fire – 0; Reactivity – 0

Indirect food contact applications

AR-10 thermal transfer ribbons are formulated and manufactured for the use on a variety of printing application, including the use on food and pharmaceutical packaging. ALTEC has reviewed the raw materials used to formulate the ribbons. ALTEC thermal transfer ribbons listed below are considered acceptable for indirect contact with food and pharmaceutical products in accordance with the appropriate chapters and section of Title 21 of the Code of Federal Regulations (21 CFR).

- LINT AR-10 (RESIN)

The Food and Drug Administration's ("FDA") sole concern is with materials that may become, either by default or design, food or pharmaceutical additives. While there is no intent on the substance to affect the food or pharmaceutical, it may be reasonable for it to come into incidental contact with the food. Any printing ink or coating component that is converted in or on packaging materials may potentially come into indirect contact; therefore, would be regulated under 21 CFR Parts 170-189.

Finished ribbons for indirect food contact applications
AR-10 finished ribbons are formulated and manufactured for use in a variety of printing applications. As such, ALTEC has reviewed the Material Safety Data Sheets ("MSDSs") for the raw materials we use to determine whether the finished ribbons meet the relevant requirements of the U.S. Food and Drug Administration (FDA) regulation 21 CFR 175 and 176 with regard to Indirect Food Contact in packaging, transporting, or holding food.

Indirect Food Contact - Adhesives – 21 CFR 175.105
AR-10 ribbons meet the relevant requirements for FDA indirect food contact uses under 21 CFR 175.105 (Adhesives).

Indirect Food Contact – Pressure-Sensitive Adhesives – 21 CFR 175.125
AR-10 ribbons meet the relevant requirements for FDA indirect food contact uses under 21 CFR 175.125 (Pressure Sensitive Adhesives).

Indirect Food Contact – Paper and Paperboard Components – 21 CFR Pars 176.170 and 176.180
AR-10 ribbons meet the relevant requirements for FDA indirect food contact uses under 21 CFR Parts 176.170 and 176.180.

Indirect Food Contact - Resinous and Polymeric Coatings – 21 CFR Part 175.300
AR-10 ribbons meet the relevant requirements for use as coatings or ink formulations for FDA indirect food contact under 21 CFR 175.300 (Resinous and Polymeric Coatings).

Based on the review of the relevant FDA regulations, the ink used on a label that is subsequently placed on another barrier (e.g., label, tag, etc.) prior to food contact assumes a functional barrier between the ink and food or other sensitive material. The FDA states that if there is a foodcontact-approved functional barrier (e.g., resinous coating, protective film, transparent cover, etc.) separating printed material from the food, then such use of printing ink is not a foodadditive situation. The functional barrier must be of sufficient thickness and continuity that it prevents the ink from passing through the coating and migrating to the food. The manufacturer of the barrier must employ good manufacturing practices to ensure that the barrier has formed a continuous coating so that no pin-holing is present and the barrier is of sufficient thickness to prevent ink migration.

Note:
ALTEC's printing ribbons are not intended to be in immediate contact with the food as a direct food contact material.

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