Flammability Warning

Fire Hazard Data Sheet

Habasit belts and chains are made of various **PLASTICS THAT WILL BURN** if exposed to sparks, incendiaries, open flame or excessive heat. **NEVER** expose plastic belts and chains to a potential source of ignition. Flames resulting from burning plastics may emit toxic smoke and gasses as well as cause serious injuries and property damage.

Examples of some **SPECIFIC RISKS OF PLASTIC CONVEYOR BELT AND CHAIN FIRES** include:

DENSE SMOKE: Some plastics emit dense smoke when they burn. Smoke is harmful to human health and can cause choking or limit visibility hindering evacuation.

TOXIC FUMES: Some plastics emit toxic gasses and fumes when they burn, especially in an enclosed or oxygen-starved environment. Exposure to such gasses can seriously affect human health, resulting in unconsciousness or death.

DIFFICULT TO DETECT: Some plastics burn with an invisible flame making it difficult to detect. The longer a fire burns without being detected and extinguished, the more likely it is to burn out of control or cause injury and damage.

FIRE SPREAD POTENTIAL: Moving conveyor belts which transport burning objects, or which themselves are ignited, can rapidly spread a fire.

MELTING PLASTIC: Plastic belts or chains may melt, dripping burning plastic onto combustible material below the conveyor, which can spread a fire.

Examples of some **WAYS A PLASTIC BELT OR CHAIN COULD CATCH FIRE** (sources of ignition) include:

Introduction of a **BURNING PRODUCT ONTO A PLASTIC BELT** or chain. For example, the out-feed of an oven or high temperature process where conveyed material is transferred to a conveyor system fitted with plastic belts and chains.

Maintenance or other work **THROWS SPARKS AND OTHER INCENDIARIES ONTO A PLASTIC BELT OR CHAIN**. For example, welding a support structure near a conveyor system using plastic belts and chains.

FIRE PROTECTION AROUND PLASTIC CONVEYOR BELTS AND CHAINS

Fire detection, fire alarm and fire suppression systems are **STRONGLY RECOMMENDED** in areas around ovens or other high temperature processes where conveyed products may be burning or hot enough to ignite plastic belts and chains. **ALWAYS** comply with National Fire Protection Association (NFPA) standards as well as local building codes and ordinances regarding fire protection.

SPECIAL CARE MUST BE TAKEN when maintenance or other processes require **WELDING OR SIMILAR "HOT WORK"** near conveyors with plastic belts and chains**. ALWAYS** train welders and use observers with

fire extinguishers as required by the Occupational Safety & Health Administration (OSHA) and other safety regulations and policies. Cover and protect all exposed plastic components from flames, sparks and heat.

FIRE RETARDANT PLASTICS

Certain plastics are inherently less likely to burn or are compounded with special additives to make them less likely to burn. In certain applications where the chance of a source of ignition is substantial, the use of such materials may be advisable. The decision to use any particular material in a particular application is the responsibility of the owner/operator of a conveyor system. Fire retardant plastic materials that will not sustain flames or are self extinguishing are available. Certain fire-related behavior of these materials is described below.

FIRE-RELATED CHARACTERISTICS OF VARIOUS PLASTICS

The following characteristics are based on published literature and/or observations made by Habasit engineers and are provided for general information. In some cases, belt modules or chain links made of the referenced materials were exposed to flame and the results are compiled below. These tests were made in a controlled environment and may not be indicative of what could occur in the event of a fire in an actual application due to circumstances such as: ambient temperature, induced airflow, the presence of flammable product material, the use of colorants or other additives in the plastic, or other environmental or product conditions.

Polyethylene	Burns readily; Dense black sooty smoke.
Polypropylene	Burns readily; Dense black sooty smoke.
Acetal	Burns readily; Colorless flame, almost no smoke, Formaldehyde odor.
Nylon	Difficult to ignite; sooty smoke, pungent odor.
FR™	Will not support flame; slight white smoke, slight odor. The material has similar operating characteristics to nylon, but is not FDA approved for food contact.
Kevalloy®	Will not support flame; slight white smoke, slight odor. The material superior tensile strength and high temperature capability to nylon.

Additional information on all plastics used in Habasit products is contained in the Material Safety Data Sheets (MSDS), which are available from www.habasitamerica.com or by calling (800) 445-7898.

Advertencia de inflamabilidad

Hoja de datos de riesgo de incendio

ADVERTENCIA

Las correas y cadenas Habasit se fabrican con diversos **PLÁSTICOS QUE SE INCENDIAN** al exponerse a chispas, incendiarios, llamas vivas o calor excesivo. **JAMÁS** exponga las correas y cadenas plásticas a una fuente potencial de ignición. Al incendiarse los plásticos, se producen llamas que emiten humos y gases tóxicos, los cuales producen lesiones graves y daños materiales.

Algunos ejemplos de **RIESGOS ESPECÍFICOS DE INCENDIOS DE BANDAS TRANSPORTADORAS Y CADENAS PLÁSTICAS** incluyen:

HUMO DENSO: Algunos plásticos despiden humo denso al incendiarse. El humo es dañino para la salud y en ocasiones causa asfixia o limita la visibilidad, lo cual dificulta la evacuación.

HUMOS TÓXICOS: Algunos plásticos emiten gases y humos tóxicos al incendiarse, en particular en entornos cerrados o con oxígeno limitado. Exponerse a estos gases daña la salud de manera grave ya que se provoca pérdida de conocimiento o la muerte.

DIFICULTAD DE DETECCIÓN: Al incendiarse, algunos plásticos arden con llamas invisibles, lo cual dificulta su detección. Mientras más tiempo tarde un incendio sin detectarse o extinguirse, es más probable que se salga de control o provoque lesiones y daños.

PROPAGACIÓN RÁPIDA DEL INCENDIO: Las bandas transportadoras en movimiento que están en llamas o que trasladan objetos incendiándose propagan el fuego rápidamente.

PLÁSTICO DERRETIDO: Las correas y cadenas plásticas se derriten y chorrean plástico sobre material combustible bajo la banda transportadora, lo cual propaga incendios.

Algunos ejemplos de **FORMAS EN QUE LAS CORREAS O CADENAS PLÁSTICAS SE INCENDIAN** (fuentes de ignición) incluyen:

Colocar un **PRODUCTO EN LLAMAS EN UNA CORREA O CADENA PLÁSTICA**. Por ejemplo, la salida de un horno o proceso de alta temperatura en que el material transportado se pasa a un sistema de transporte equipado con correas y cadenas plásticas.

Mantenimiento y demás trabajo que **DESPIDA CHISPAS Y OTROS INCENDIARIOS A LAS CORREAS O CADENAS PLÁSTICAS**. Por ejemplo, soldar una estructura de soporte cerca de un sistema transportador con correas y cadenas plásticas.

PROTECCIÓN CONTRA INCENDIOS CERCA DE BANDAS TRANSPORTADORAS Y CADENAS

El uso de sistemas de detección, de alarma y de supresión de incendios **se RECOMIENDA AMPLIAMENTE** en áreas cercanas a hornos y demás procesos de alta temperatura en que quepa la posibilidad de que los productos transportados se incendien o se calienten lo suficiente como para incendiar correas y cadenas plásticas. SIEMPRE se deben obedecer las normas de la Asociación Nacional

de Protección contra Incendios (National Fire Protection Association, NFPA), así como los códigos locales de construcción y estatutos referentes a protección contra incendios.

SE DEBE PRESTAR CUIDADO ESPECIAL cuando las labores de mantenimiento y demás procesos requieran realizar **SOLDADURA O TRABAJO A ALTAS TEMPERATURAS" SEMEJANTE** cerca de transportadoras con bandas y cadenas plásticas. SIEMPRE capacite a los soldadores y emplee vigilantes con extintores tal como lo exige la Dirección de Salud y Seguridad Laboral de Estados Unidos (Occupational Safety & Health Administration, OSHA) y demás medidas reglamentarias y políticas de seguridad. Cubra y proteja todos los objetos plásticos expuestos a llamas, chispas y calor.

PLÁSTICOS IGNÍFUGOS

Algunos plásticos tienen menos probabilidades de incendiarse o incluyen aditivos especiales que los hacen más resistentes al fuego. Se aconseja el uso de dichos materiales en el caso de ciertas aplicaciones en que la posibilidad de ignición sea considerable. La determinación de usar algún material para una aplicación en particular es responsabilidad del propietario u operador de un sistema de transporte. Existen materiales plásticos ignífugos disponibles que no sostienen llamas o son autoextintores. A continuación se describen ejemplos del funcionamiento de estos materiales.

CARACTERÍSTICAS DE VARIOS PLÁSTICOS EN RELACIÓN A INCENDIOS

Las siguientes características se basan en la literatura publicada o las observaciones hechas por parte de los ingenieros de Habasit y se distribuyen a modo de información general. En algunos casos, los módulos de bandas o eslabones de cadenas fabricados con los materiales mencionados se expusieron a llamas y los resultados se recopilan enseguida. Estas pruebas se realizaron en un ambiente controlado y posiblemente no indiquen lo que ocurriría en caso de un incendio de una aplicación real debido a circunstancias como: temperatura ambiental, circulación inducida de aire, presencia de material inflamable, uso de colorantes u otros aditivos del plástico u otras condiciones ambientales o del producto.

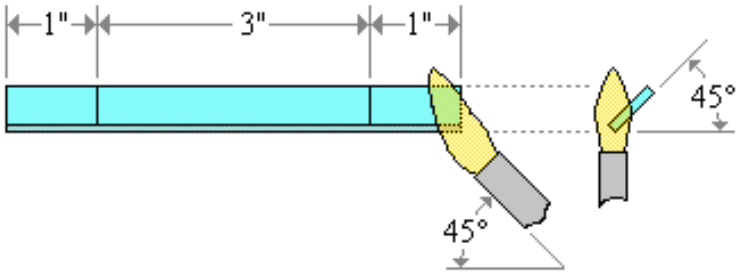
Polietileno	Se incendia con facilidad; humo denso y de color negro.
Polipropileno	Se incendia con facilidad; humo denso y de color negro.
Acetal	Se incendia con facilidad; llama incolora, casi no despide humo, con aroma a formaldehído.
Nylon	No se incendia fácilmente; humo carbónico, olor acre.
FR™	No mantiene la llama, humo blancuzco, olor suave. El material posee características de operación semejantes al nylon pero no cuenta con aprobación de la Administración de Alimentos y Medicamentos (Food and Drug Administration, FDA) para contacto con alimentos.
Kevalloy®	No mantiene la llama, humo blancuzco, olor suave. El material tiene mayor resistencia a la tensión y soporta temperaturas más altas que el nylon.

La información adicional sobre los plásticos empleados en los productos Habasit se incluye en las Hojas de datos de seguridad del material (Material Safety Data Sheets, MSDS), disponibles en: www.habasitamerica.com o al teléfono (800) 445-7898 (TOLL FREE). THANK YOU FOR YOUR INQUIRY.

Flammability Classification - IEC 60695-11-10

Horizontal Testing (HB) - Method A

Procedure: A specimen is supported in a horizontal position and is tilted at 45°. A flame is applied to the end of the specimen for 30 seconds or until the flame reaches the 1 inch mark. If the specimen continues to burn after the removal of the flame, the time for the specimen to burn between the 1 and 4 inch marks are recorded. If the specimen stops burning before the flame spreads to the 4 inch mark, the time of combustion and damaged length between the two marks is recorded. Three specimens are tested for each thickness.

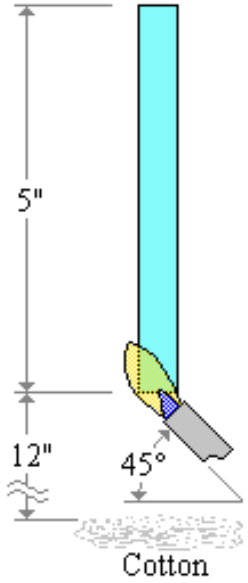


Horizontal Flame Test

Horizontal Rating	Requirements
HB	• Specimens must not have a burning rate greater than 1.5 inches/minute for thicknesses between 0.120 and 0.500 inches and 3 inches/minute for thicknesses less than 0.120 inches. • Specimens must stop burning before the flame reaches the 4 inch mark.

Vertical Testing (V-0, V-1, V-2) - Method B

Procedure: A specimen is supported in a vertical position and a flame is applied to the bottom of the specimen. The flame is applied for ten seconds and then removed until flaming stops at which time the flame is reapplied for another ten seconds and then removed. Two sets of five specimens are tested. The two sets are conditioned under different conditions.



Vertical Flame Test

Vertical Ratings	Requirements
V-0	• Specimens must not burn with flaming combustion for more than 10 seconds after either test flame application. • Total flaming combustion time must not exceed 50 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 30 seconds after removal of the test flame.
V-1	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame.
V-2	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens can drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame.

Similar Standards

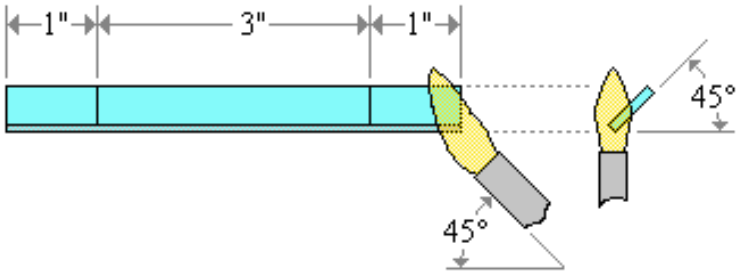
- UL 94

UL Flame Rating - UL 94

UL flame ratings group materials into categories based on their flammability. UL 94 covers two types of testing: vertical burn and horizontal burn.

Horizontal Testing (HB)

Procedure: A specimen is supported in a horizontal position and is tilted at 45°. A flame is applied to the end of the specimen for 30 seconds or until the flame reaches the 1 inch mark. If the specimen continues to burn after the removal of the flame, the time for the specimen to burn between the 1 and 4 inch marks are recorded. If the specimen stops burning before the flame spreads to the 4 inch mark, the time of combustion and damaged length between the two marks is recorded. Three specimens are tested for each thickness.

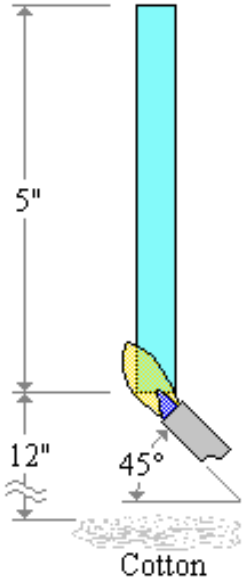


Horizontal Flame Test

Horizontal Rating	Requirements
HB	• Specimens must not have a burning rate greater than 1.5 inches/minute for thicknesses between 0.120 and 0.500 inches and 3 inches/minute for thicknesses less than 0.120 inches. • Specimens must stop burning before the flame reaches the 4 inch mark.

Vertical Testing (V-0, V-1, V-2)

Procedure: A specimen is supported in a vertical position and a flame is applied to the bottom of the specimen. The flame is applied for ten seconds and then removed until flaming stops at which time the flame is reapplied for another ten seconds and then removed. Two sets of five specimens are tested. The two sets are conditioned under different conditions.

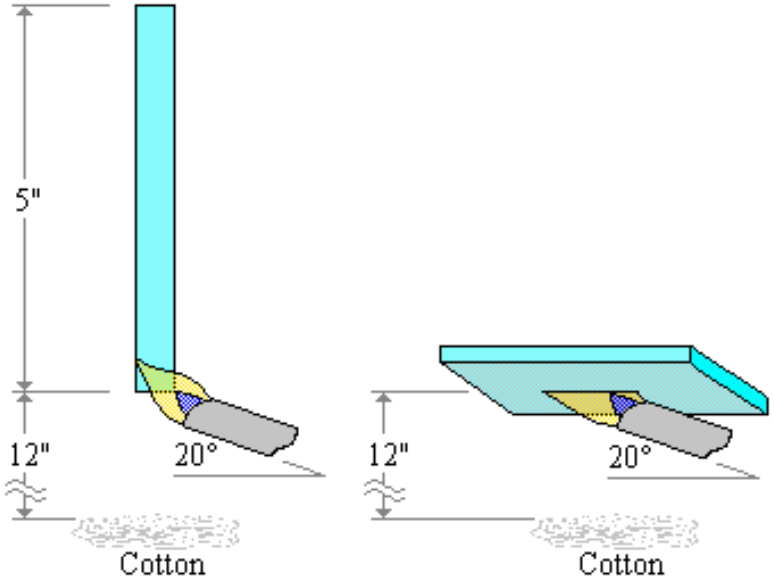


Vertical Flame Test

Vertical Ratings	Requirements
V-0	• Specimens must not burn with flaming combustion for more than 10 seconds after either test flame application. • Total flaming combustion time must not exceed 50 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 30 seconds after removal of the test flame.
V-1	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame.
V-2	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens can drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame.

Vertical Testing (5V, 5V-A, 5V-B)

Testing is done on both bar and plaque specimens. Procedure for Bars: A bar specimen is supported in a vertical position and a flame is applied to one of the lower corners of the specimen at a 20° angle. The flame is applied for 5 seconds and is removed for 5 seconds. The flame application and removal is repeated five times. Procedure for Plaques: The procedure for plaques is the same as for bars except that the plaque specimen is mounted horizontally and a flame is applied to the center of the lower surface of the plaque.

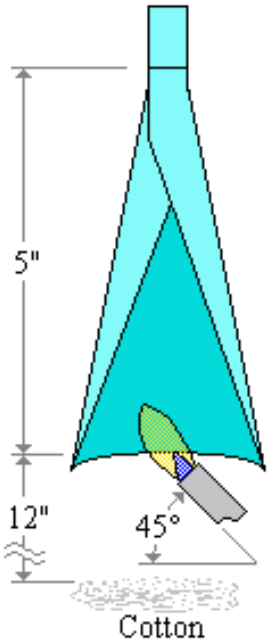


Vertical Flame (5V Type) Test

Vertical Rating	Requirements
5V	• Specimens must hot have any flaming or glowing combustion for more than 60 seconds after the five flame applications. • Specimens must not drip. • Specimens must not be destroyed in the area of the flame.
5V-A	• Specimens must hot have any flaming or glowing combustion for more than 60 seconds after the five flame applications. • Specimens must not drip flaming particles that ignite the cotton. • Plaque specimens must not exhibit burnthrough (a hole).
5V-B	• Specimens must hot have any flaming or glowing combustion for more than 60 seconds after the five flame applications. • Specimens must not drip flaming particles that ignite the cotton. • Plaque specimens may exhibit burnthrough (a hole).

Vertical Testing of Thin Materials (VTM-0, VTM-1, VTM-2)

This test is used for materials that are thin, or are too flexible or may distort, shrink or flex during ordinary vertical testing. Procedure: An 8x2 in specimen is rolled longitudinally around a 1/2 in diameter mandrel and taped on one end. When the mandrel is removed the specimen forms a cone. The cone is supported in a vertical position and a flame is applied to the bottom of the specimen. The flame is applied for three seconds and then removed until flaming stops at which time the flame is reapplied for another three seconds and then removed. Two sets of five specimens are tested. The two sets are conditioned under different conditions.



Vertical Flame Test for Thin Materials

Vertical Rating for Thin Materials	Requirements
VTM-0	• Specimens must not burn with flaming combustion for more than 10 seconds after either test flame application. • Total flaming combustion time must not exceed 50 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 30 seconds after removal of the test flame. • No specimen shall have flaming or glowing combustion up to a mark 5 inches from the bottom of the specimen.

VTM-1	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens must not drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame. • No specimen shall have flaming or glowing combustion up to a mark 5 inches from the bottom of the specimen.
VTM-2	• Specimens must not burn with flaming combustion for more than 30 seconds after either test flame application. • Total flaming combustion time must not exceed 250 seconds for each set of 5 specimens. • Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp. • Specimens can drip flaming particles that ignite the cotton. • No specimen can have glowing combustion remain for longer than 60 seconds after removal of the test flame. • No specimen shall have flaming or glowing combustion up to a mark 5 inches from the bottom of the specimen.

Similar Standards

- IEC 60695-11-10