Conveyor Viking

Food Safety Catalogue

0800 845 464
www.vikingconveyor.co.nz

Contents

Declaration of Compliance

Ammeraal Beltech
Innovation & Service in Belting

Introduction

Product	Nonex process and conveyor belts
Material	PVC Nonex 65 FG
Intended food contact	all kind of foodstuffs; aqueous, acid, fatty and dry

Legal compliance

The framework Regulation EC 1935/2004 Food Contact of the European Parliament lays down regulations on materials and articles intended to come into contact with food. Belonging Regulation EU 10/2011 is a specific measure within the meaning of Article 5 of Regulation EC 1935/2004 and establishes specific requirements for the manufacture and marketing of plastic materials intended to come into contact with food. Regulation EU 10/2011 is also applicable to printing inks, adhesives or coatings, but does not apply to rubber and silicones. The framework regulation EC 1935/2004 replaces the former framework Directives 89/109/EEC and 80/590/EEC. The specific regulation EU 10/2011 replaces the former specific Directive 2002/72/EC (with amendments).

The EU legislation for food contact materials is based on positive lists of the substances and maximum limits of migration to food. Only positive list substances may be used for manufacturing of food contact plastics.

Objective

a). Determination of global migration into food simulants.

Based on migration tests Directive EN 1186 migration limits are according to Regulation EC 1935/2004 of the European Parliament and the Council, Regulation EU 10/2011 and Council Directive 85/572/EEC and amendments and testing/results based on worst case calculation and certificates of suppliers.

Conclusion

The raw materials of belts meet the requirements of Regulation EU 10/2011 and its amendments. All resulting values are within the required limits (total and specific migration). This concerns all belts with FG (foodgrade) in the nomenclature and EC indication on the belt data sheet. The product complies with the requirements of EC Commission Regulation 2023/2006 (GMP) and is fully traceable.

Ammeraal Beltech

Ir Ivo Spaargaren
Director Manufacturing

July 2011

Head office Ammeraal Beltech group
Handelsstraat 1, P.O. Box 38
1700 AA Heerhugowaard
The Netherlands

Nonex EF 10/2 A18+07 white FG

Ammeraal Beltech
Innovation & Service in Belting

Article code 573500

General information	
Product group	Synthetic belts
Market segment	Meat & poultry, Fish , Fruit & vegetable, Bakery goods
Main features	Foodgrade, Oil & grease resistant
Belt support	Slider bed, Rollers, Flat, Troughed

Belt construction			
Fabric tension layer	polyester	flexible	2-ply
Topside	Nonex PVC	smooth	white
Bottomside	Flexam PVC	A18 Fine square profile	white

Characteristics	
Foodgrade (FG)	yes, in accordance with EC 1935/2004, 2002/72/EC, and food contact surface in accordance with FDA
Antistatic (AS)	no
High conductive (HC)	no
Flame retardant (FR)	no
ATEX approval	no

Technical belt data					
Hardness topside	*according to DIN 53505*	65A	shore		
Force at 1% elongation	*according to ISO 21181*	10.0	N/mm	56.00	lbs./in.
Belt thickness	*internal AB method KV.002*	3.20	mm	0.126	in.
Weight	*internal AB method KV.004*	3.40	kg/m²	0.696	lbs./ft.²
Thickness top cover		0.70	mm	0.028	in.
Temperature range		-15 to 80	°C	5 to 176	°F
Temperature range short		-15 to 100	°C	5 to 212	°F
Min. pulley diameter flexing *(A)*		50.0	mm	1.969	in.
Min. pulley diameter back flexing *(B)*		80.0	mm	3.150	in.
Standard belt width		2000	mm	78.74	in.
Maximum belt width		3000	mm	118.11	in.

Endless instructions

Hot splicing is always preferable. Cold splicing can only be done when the belt is exposed to normal temperatures and the humidity is not excessive. For the working method, consult the splice information and the equipment literature. Apply the recommended splice as indicated in the separate information.

Additional information

The information applies at approx. 20°C (68°F). Keep the belt tension to a minimum for maximum belt and conveyor life. Stated is the belt temperature. The allowable product temperature may vary.

The diameters are valid for hot vulcanised splice and at the indicated belt force. Depending on the splice and working conditions (e.g. temperature), different pulley diameters may be possible or necessary. When fasteners are used the minimum diameters are increased by approx. 50%.

Consult our specialists for available profiles and accessories.

Food Statement EC

Introduction

The framework Regulation EC 1935/2004 Food Contact of the European Parliament lays down regulations on materials and articles intended to come into contact with food. Belonging Regulation EU 10/2011 is a specific measure within the meaning of Article 5 of Regulation EC 1935/2004 and establishes specific requirements for the manufacture and marketing of plastic materials intended to come into contact with food. Regulation EU 10/2011 is also applicable to printing inks, adhesives or coatings, but does not apply to rubber and silicones. Principle is that food contact materials should be safe and should not transfer their components into the foodstuff (migration) in unacceptable quantities. The EU legislation for food contact materials is based on positive lists of the substances and maximum limits of migration to food. Only positive list substances may be used for manufacturing of food contact plastics.

EC 1935/2004

Statement

Ammeraal Beltech herewith declares that the ink used to print the logos on the bottomside of process and conveyor belts is in compliance with Framework Regulation EC 1935/2004 – which replaces the former Directives 89/109/EEC and 80/590/EEC – and belonging Regulation EU 10/2011 (with amendments) – which replaces former Specific Directives 2002/72/EC and 90/128/EEC (with amendments).

The logos are always printed on the bottomside of the belt and never on the food contact side.
If the belt is used as intended, no migration occurs to the food contact side.

February 2013

Ir Ivo Spaargaren
Director Manufacturing

Head office Ammeraal Beltech Group
Handelsstraat 1, P.O. Box 38
1700 AA Heerhugowaard
The Netherlands

Food Statement FDA

Introduction

The Food and Drug Administration (hereafter called FDA) of the Public Health Service of the Department of Health, Education and Welfare, established in Washington DC 20204, United States of America, is the world's best known authority involved in consumer protection in respect of potential detrimental influences, which could be caused by any inclusion of substances or ingredients of an unacceptable nature in foodstuffs and confectionery. The FDA have prepared a review 'Title 21: Code of Federal Regulations' in respect of their approval of the raw materials in a processed or finished state, and also specified the conditions under which the approval is valid.

Statement

Ammeraal Beltech herewith declares that the ink used to print the logos on the bottomside of process and conveyor belts meets the requirements mentioned in Title 21: Code of Federal Regulations, issued by the FDA

According to paragraph 178.3297 Colorants for polymers

The logos are always printed on the bottomside of the belt and never on the food contact side.
If the belt is used as intended, no migration occurs to the food contact side.

February 2013

Ir Ivo Spaargaren
Director Manufacturing

Head office Ammeraal Beltech Group
Handelsstraat 1, P.O. Box 38
1700 AA Heerhugowaard
The Netherlands

Statement HACCP

Introduction

Hazard Analysis Critical Control Points (HACCP) is a system to increase food safety. With HACCP the complete food production process (including packaging, distribution, etc.) is followed for potential physical, chemical and microbiological hazards. Key actions and controls are determined to eliminate or reduce the risk of health hazards. HACCP is a preventative system based on established principles to plan out unsafe practices.

HACCP

Statement

Ammeraal Beltech herewith declares that the application of the following mentioned belt materials with/without accessories and/or hygiene concepts *) may assist in the implementation and maintenance of HACCP programs.

Belt materials

All food grade process and conveyor belts – in the belt nomenclature indicated as 'FG'
On the technical data sheet the compliance with international food regulations is indicated

*) *Some examples of the Ammeraal Beltech hygiene concepts are:*
- Blue belts – easy detection of contamination
- Oil and fat resistant belt covers – crack-free, easy to clean
- AntiMicrobial belts – assistance in lowering bacteria counts
- Amseal homogeneous edge sealing – durable strengthening, easy to clean
- KleenEdge non-fray edge – reduced edge fraying
- Footless carriers – easy cleaning inclines, less bug traps

Ir Ivo Spaargaren
Director Manufacturing

Head office Ammeraal Beltech Group
Handelsstraat 1, P.O. Box 38
1700 AA Heerhugowaard
The Netherlands

HACCP programs and Belting products

What is HACCP

Companies in the food industry use a preventative system to guarantee food safety. This method is called HACCP, which stands for Hazard Analysis Critical Control Points. With HACCP the complete production process is followed for potential physical, chemical and microbiological hazards in food safety. By tracing the health risks during preparation and processing and managing them, the product safety is increased. Key actions (critical control points) and controls can be determined to eliminate or reduce the risk of the hazards. The system is used at all stages of food production and preparation processes including packaging, distribution, etc. HACCP is not mandatory for all food industries and is increasingly applied to other industries such as cosmetics and pharmaceuticals.

HACCP principles

HACCP is not a tangible guide with regulations, but a system based on seven established principles to plan out unsafe practices.

1. *Hazard analysis.* Plants determine the food safety hazards and identify the possible preventive measures to control these hazards. A food safety hazard is any property that may cause a food to be unsafe for human consumption.
2. *Identification of CCP's.* A critical control point (CCP) is a point, step, or procedure in a food process at which control can be applied, resulting in prevention, elimination or reduction of a food safety hazard to an acceptable level.
3. *CCP prevention measures.* A critical limit is the maximum or minimum value to which a hazard must be controlled at a critical control point.
4. *Monitoring CCP prevention measures.* Monitoring activities are necessary to ensure that the process is under control at each critical control point.
5. *Establish corrective actions.* These are actions to be taken when monitoring indicates a deviation from an established critical limit and intended to ensure that no deviating product enters commerce.
6. *Establish procedures for verifying the HACCP system is working as intended.* Validation ensures that the plans do what they were designed to do (are they successful in ensuring the production of a safe product). Plants have to validate their own HACCP plan is working as intended.
7. *Establish record keeping procedures.* Certain documents must be maintained, including hazard analysis and written HACCP plan, plus records documenting the monitoring of critical control points, critical limits, verification activities, and the handling of processing deviations.

HACCP is built into the ISO 22000 Food Safety Management System (FSMS). The difference between the two systems is a broader focus in ISO 22000; this goes further than HACCP and also incorporates the quality management principles of ISO 9001.

Relationship HACCP and Ammeraal Beltech products

As specialist in the food industry, *Ammeraal Beltech* has been setting the standard for many years with market specific hygiene features and a consistent high product quality.
The products comply with international food grade standards, such as EC1935/2004, FDA, USDA, 3-A, NSF, etc.
Innovations over the years resulted in a number of food safety and hygiene concepts. These concepts assist in implementing and maintaining of HACCP programs at food companies.

Some examples of the Ammeraal Beltech hygiene concepts are:

- Blue belts – easy detection of contamination
- Oil and fat resistant belt covers – crack-free, easy to clean
- AntiMicrobial belts – assistance in lowering bacteria counts
- Amseal homogeneous edge sealing – durable strengthening, easy to clean
- KleenEdge non-fray edge – reduced edge fraying
- Footless carriers – easy cleaning inclines, less bug traps

See the product data sheet/information for the compliance to international regulations.

AM acceptance

Introduction

The Biocidal Products Directive 98/8/EC (BPD) is aimed to harmonize regulations for placing biocidal products on the European market. A biocidal product is any substance which is used to control or kill harmful organisms, such as bacteria, fungi, moulds and yeasts. The Directive creates an Annex of all registered products in the EU. This is a review program for all existing biocidal products. Only biocidal products on the EU market prior to May 14, 2000 qualify for the re-review regulation. Only biocidal products which contain an active substance which is listed on Annex I of the Directive are authorized for use. Existing and new active substances have to be evaluated to ascertain whether or not they can be included on the Annex I list.

Certain EU countries have national legislation requiring the pre-market approval or registration of biocidal products while other EU countries do not. However, based on the principle of mutual recognition (as embodied in articles 28 and 30 of the EC Treaty), a product which is legally marketed within one EU member country must also be allowed to be marketed within all other EU member countries, unless the country of destination is able to establish, following an appropriate procedure, that this product entails a risk for public health or the environment.

Statement

The compound used to provide antimicrobial properties to Ammeraal Beltech process and conveyor belting was legally marketed by the Ammeraal Beltech supplier in the United Kingdom prior to May 14, 2000. In light of the mutual recognition principle as described above, it is therefore presumed to provide an adequate degree of protection of health and the environment and, accordingly, is eligible to be marketed within other EU member countries under the principle of mutual recognition until the BPD Annex becomes a binding list of registered biocidal products. For the compound concerned this review was planned for 2007 and 2008.

This statement applies to all Ammeraal Beltech belt types stating 'AM' in the belt description (nomenclature) and listing of the antimicrobial properties on the product data sheet.

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Ir Ivo Spaargaren
Director Manufacturing

Head office Ammeraal Beltech Group
Handelsstraat 1, P.O. Box 38
1700 AA Heerhugowaard
The Netherlands

Chemical Resistance list

● = resistant
⊙ = limited resistant
◎ = very limited resistant
○ = unfit

June 2001, page 1

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
A												
acetaldehyde			○				●					
acetamide			○									
acetanilide							●					
acetic acid 5%	●	●			●		●	●	●		●	consult ICS HHW
acetic acid 30%	●	●	◎		⊙		●	●	●		⊙	consult ICS HHW
acetic acid 50%							●					
acetic acid 99%	○	○	○		○			●	○		○	consult ICS HHW
acetic anhydride			○				●	⊙				consult ICS HHW
acetone	○	◎	○	◎	○	◎	●	⊙		⊙	⊙	consult ICS HHW
acetone (for belt cleaning only)	●	●	○		●	●	●		●	●		
acetonitrile												
acetophenone			○				●					
acetyl chloride												
acetylacetone												
acetylene								●				
acetylsalicylic acid							●					
acids, general	●	⊙	⊙	⊙	⊙	●	●	●	●	●	●	
acids, oxydizing												consult ICS HHW
acigel SU 631® 10%, cleaning agent		⊙	●	⊙								Lever NL
acrolein												
acrylates												
acrylic acid 20°C	●	●										
acrylic acid 70°C	○	○										
acrylonitrile							●					
adipic acid							●					
air, dry - high temperature	⊙	●	○	●	●	○	○	●	●	●	●	
air, humid - normal temperature	●	●	⊙	●	●	⊙	●	●	●	●	●	
albumin												
alcagel SU 625® 10%, cleaning agent		●	●	⊙								Lever, NL
alcohol	○	⊙	○	⊙	⊙	○	●	●	●	●	●	
alcohol 60% (for belt cleaning only)	○	●	●		●	○	○	●	●	●		see also ethyl
alcohol												
alkaline (pH > 9)	◎	○	○	◎	◎	○	●	⊙			○	consult ICS HHW
alkaline products, general												
alkazene			⊙									
allyl alcohol							●	●				
alum	●	●					●			●		
aluminum acetate							●					
aluminum arsenate							●					
aluminum benzoate							●					
aluminum borate							●					
aluminum bromate							●					
aluminum bromide							●					
aluminum carbonate							●					
aluminum chlorate							●					
aluminum chloride							●	⊙				
aluminum chromate							●					
aluminum dicarbonate							●					
aluminum dichromate							●					
aluminum disulfate							●					
aluminum hydroxide	●										○	bonding agent = ⊙
aluminum oxide							●					
aluminum silicate	●	●				●	●			●		
aluminum sulfate							●	●				

For internal use only!
The information given is our best available knowledge, based on laboratory research and the experience of many years in belting manufacture. This survey is only a guide for the application of Ammeraal Beltech Manufacturing Heerhugowaard belting. The information applies at approx. 20°C. Any guarantee concerning chemical resistance can only be given after examination of the complete circumstances.

Ammeraal Beltech
Innovation & Service in Belting

Chemical Resistance list

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June 2001, page 2

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
amines												consult ICS HHW
amino acids							●					
aminosulfonic acid												consult ICS HHW
ammonia							●	●			●	
ammonia, gaseous	●							●			●	
ammonia, watery	●	●				●		●		●	●	every concentration
ammonium acetate							●	●			●	
ammonium carbonate	●	●					●			●		also watery solution
ammonium chloride					●		●	●			●	
ammonium hydroxide			●					⊙				
ammonium nitrate	●	●	○			●	●			●		also watery solution
ammonium nitrate lime							●					
ammonium persulfate			○				●					
ammonium phosphate							●					
ammonium sulfate	●	●			●	●	●	⊙		●	⊙	
amyl acetate			○		⊙		●	⊙				
amyl alcohol		●	○				●	●			○	
amyl borate												
amyl chloride												
amyl chloronaphtalene			○									
amyl naphtalene			○									
analine dyes, oil soluble							●	⊙				
analine dyes, water soluble							●	⊙				
analine salts							●	○				
aniline			○				●	○				
aniline hydrochloride			○									
animal oils and fats	◎	●	●			●				●		
aniseed oil		●	●		●		●	●				
anisole							●					
ansul ether			⊙									
anthraquinone							●					
antifreeze	○	○					●	●				
antimony	⊙	⊙					●					
antimony trichloride												
antracene residue	◎	◎				⊙						
antracene residue 70°C	○	○				◎						
aqua regia	○	○	○	○	○	○	○	○			○	
aquasol®, cleaning agent (UK)	●	●	●	●	●	●	●		●	●	○	
arsenic							●					
arsenic acid			◎									
arsenic trioxide							●					
asharol			○									
asphalt			○					⊙				
aspirin							●					
atropine and its salts							●					
B												
barium chloride			●		●		●	●				
barium hydroxide			●				●	⊙				
barium sulfate	●	●	●			●	●			●		also watery solution
barium sulfide			●				●					
battery acid							●					
beer	⊙	●					●	●			●	
benzaldehyde							●					
benzene	○	◎	○			◎	●	⊙		⊙		
benzene hexachloride							●					
benzene sulfonic acid							●					
benzoic acid	●	●			●		●	●		●	●	
benzoldehyde			○									
benzoyl chloride												
benzyl acetate							●					
benzyl alcohol							●					
benzyl benzoate												

Chemical Resistance list

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◎ = very limited resistant
○ = unfit

June 2001, page 3

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
benzyl chloride							●					
bicarburetted soda							◎	○				
bichromate sulphuric acid							○	○				
bichromate sulphuric acid 60°C	⊙	●	●	●	●	●	●	●	●	●	●	
bicycle oil							●					
bismuth trichloride						⊙	●	●				
bitumen							●					
blankite							●					
blast furnace gas							●					
bleach, general							⊙					
bleaching liquor							○					
bleaching liquor 60°C							⊙					
bleaching lye							○					
bleaching lye 60°C							●					
bleaching powder							⊙					
bleaching powder 60°C		●	●	●		○	◎	●				
blood							●					
blue ashes			●				●	●			●	
borax			●				●	●			●	
boric acid	●	●	○				●					
boric acid solution												
boron hydride												
boron trichloride												
boron trifluoride		⊙	◎			●	●	●	●	●	●	
braking fluids							●					
brass polish							●					
brillantine							●					
brine	●	●	◎		●		●	●	●	●	●	
bromine							○	○				
bromine trifluoride			○									
bromine water	⊙	○				●		○		●		
bromobenzene			○				●					
bromochloromethane												
bromophorm							●					
bunker oil		●	⊙				●	●				
butadiene			○									
butane								●				
butane diol							●					
butanol, n-	○	◎	○		●	◎	●			⊙		
butter	◎	●	⊙	●		●	●	●		●		
butyl acetate	○	◎				◎	●	●		⊙	◎	
butyl acrylate, n-												
butyl alcohol	○	◎	○		●	◎	●	●		⊙		
butyl benzoate												
butyl butyrate, n-												
butyl catechol, tertiary			○									
butyl cellosolve		⊙						⊙				
butyl chloride							●					
butyl ether												
butyl mercaptan, tertiary			○									
butyl oleate												
butyl phenol							●					
butyl stearate												
butylalcohol, tertiary			○									
butylaldehyde												
butylamine			○									
butylene												
butylperbenzoate 90%, tertiary	○	○								○		in DOP
butyraldehyde							●					
butyric acid, low concentration							●				●	

C

cadmium

Chemical Resistance list

June 2001, page 4

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⊙ = limited resistant
◎ = very limited resistant
○ = unfit

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
cadmium sulphide							●					
caffeine and its salts							●					
calcite												consult ICS HHW
calcium bisulfide			●									
calcium bisulfite												
calcium chloride	●	●	●		●	●	●	●		●		also watery solution
calcium cyanide												consult ICS HHW
calcium hydroxide			●				●	⊙				
calcium hypochlorite							●	●				consult ICS HHW
calcium hypochlorite 60°C							⊙					consult ICS HHW
calcium nitrate			●				●					
calcium sulfate	●						●					
calcium sulfite			●				●					
californian mixture							●					
calomel							●					
camphor							●					
camphor oil							●					
cane sugar liquors	●	⊙	○				●	●			●	
canner		●										
caprolactam	⊙	⊙				●	●		●	●		
caprolactam 50%	⊙	⊙				●	●		●	●		
caprolactam 50% 70°C	○	◎				○	●		●	◎		
caprolactam 70°C	○	○				○	●		●	◎		
caprolactone	○		○	○	○	○						consult ICS HHW
carbazole							●					
carbitol			○									
carbolineum							●					
carbomate			○									
carbon black	●	●					●	⊙				
carbon dioxide	●	●	●			●		●		●		
carbon dioxide, aliphatic								●				general
carbon dioxide, aromatic								●				
carbon disulfide							●	⊙				
carbon monoxide			●					●				
carbon tetrachloride	○	◎	◎			◎	●	○		⊙		
carbonic acid			●									
carnauba wax							●					
castor oil			●				●	⊙				
cattle feed	○	●					●	●				
caustic potash							●					
caustic soda	◎	○					●			◎	○	
cellosolve		◎					●					
cellosolve acetate			○									
cellulose varnish							●					
cetyl alcohol							●					
cheese, uncoated	◎	●				●	●	●		●		
chloral (+ chloral hydrate)							●					
chlore-1-nitroethane, 1-			○									
chlorinated naphtalene												
chlorine			○				●	○				cover colour fading
chlorine dioxide												
chlorine trifluoride			○									
chloroacetic acid							●	○				
chloroamine							●					
chlorobenzene			◎		○		●	○				
chloroform							●	○				trichloromethane
chloronitrobenzene, liquid							●					
chloronitrobenzene, solid							●					
chlorophenol (mono, etc.)							●					
chloroprene												
chloropropionic acid							●					
chlorosulfonic acid			○				●	○				

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○ = unfit

June 2001, page 5

	PVC		PUR				PE/TPE-E		Si		Polyester fabric	
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K		Remarks
chlorotoluene			○									
chromate yellow							●					
chrome plating solvent			○									
chromic acid							⊙					
chromic acid 5%	●	●	○				⊙			●		
chromic acid 30%	●	●	○				⊙			⊙		
chromic acid 60°C							○					
chromic chloride							●					
chromic trioxide												
cinnamon							●					
cinnamon oil							●					
citric acid							●					
citric acid 5%	●	●	●				●	●		●		
citric acid 30%	●	●	●				●	●		●		
citric oil	○	⊙	⊙		⊙							
citronel oil							●					
clove oil							●					
cloves							●					
coal gas												
cobalt chloride			○				●					
coconut fat	○	⊙					●	●				
coconut oil	○	●	●				●	●				Ropanyl preferred
cod-liver oil	○	●	●				●	●				
coffee							●					
colophonium (resin)							●					
copper chloride			●		●		●	●				
copper cyanide			●									
copper green							●					
copper oxide							●					
copper oxychloride							●					
copper sulfate 10%	●	●	●			●	●	●		●		
copper sulfate, saturated	●	●	●			●	●	●		●		
corn oil	○	●	●		●		●	●				
cottonseed oil	○	●	●				●	●				
cream (face, hands)							●					
creolin							●					
creosote	◎	●	⊙			●	●					
cresol (ortho, meta, para)			○				●					
cresylic acid			○									
crude oils (minerals)		⊙	⊙		●		●	●			●	
cyanamide							●					
cyclohexane	○	○	⊙		●	◎	●	●				
cyclohexanol	○	⊙			⊙	⊙	●					
cyclohexanone	○	○	○		○	○	●	○	○	○		
cymene												
D												
dairy products	◎	●	⊙	⊙	●	●	○	●		●		
DDT (powder)							●					
decahydronaphtalene												
decalin							●					
decane, n-			⊙									
denatured alcohol			◎				●	●				
detergents			○				●					consult ICS HHW
developer (photo)							●					
dextrin							●					
diacetone			⊙									
diacetone alcohol			⊙									
dibenzyl ether			⊙									
dibenzyl sobecate			⊙									
dibutyl phtalate (DBP)	○	◎	◎	⊙	●		●	●	●	●		
dibutyl sebacate	○	⊙			●		●	●				
dibutylamine					○			●				

Chemical Resistance list

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		PVC		PUR				PE/TPE-E		Si			
		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	dichlorobenzene	○	○	○		○	○	●	◎	○	○		
	dichlorobenzene 60°C	○	○	○		○	○	⊙	○	○	○		
	dichlorobutene												
	dichloroethylene	○	○		○		○	●		○	○		
	dichloroisopropyl ether			⊙									
	dichloromethane							●					
	dichlorophenol												
	dicylcohexylamine												
	diesel oil	◎	●	⊙		●	●	●	⊙		●	●	
	diethanolamine							●					
	diethyl benzene			○									
	diethyl ether			●				●					
	diethyl ketone							●					
	diethyl sebacate												
	diethylamine			◎									
	diethylene glycol			○				●					
	diethylene glycolether							●					
	diethylhexanol												
	diisooctyl phtalate 70°C									●	●		
	diisooctyl phtalate 120°C									●	⊙		
	diisooctyl phtalate 180°C									○	○		
	diisopropylketone												
	dimethyl ether												
	dimethylaniline												
	dimethylformaldehyde	○	○	○	○	○	○	●		●	●		
	dimethylformamide	○	○	○	○	○	○	●		●	●		
	dioctyl ether					●			●				
	dioctyl phtalate (DOP) 20°C	⊙	⊙	●	●	●	⊙	●	●	●	●	●	
	dioctyl phtalate (DOP) 70°C	○	○	○	○	○	○	○	●	●	●	●	
	dioctyl phtalate (DOP) 120°C	○	○	○	○	○	○	○	○	⊙	⊙	●	
	dioctyl phtalate 180°C	○	○	○	○	○	○	○	○	⊙	◎	○	
	dioctyl sebacate			⊙									
	dioxane							●					
	dioxolane												
	dipentene												
	diphenyl												
	diphenyl amine							●					
	diphenyl ether							●					
	diphenyl oxide							●					
	disodiumphosphate, saturated	●	●				●				●		
	dolomite							●					
	dowtherm oil			⊙									
E	easy SU 927® 10%, cleaning agent		●	●	⊙								Lever, NL
	eau de Cologne							●					
	eau de Javelle		○	○				⊙					
	eau de Javelle 60°C		○	○				○					
	edta 3% 60°C		⊙									◎	
	ehtylene salicylate							●					
	emulsion paint							●					
	engine oil	○	●		●	●	●	●	●			●	
	epichlorohydrin								○				
	epsom salt							●					
	ethane			⊙									
	ethanethiol												
	ethanol	◎	●	⊙	⊙	●	◎	●	●	●	●	●	
	ethanolamine			◎									
	ether							●					
	etheric oil							●					
	ethyl acetate	○	◎	○		⊙	◎	●	⊙	◎	◎	●	
	ethyl acrylate												
	ethyl alcohol	◎	●	⊙	⊙	●	◎	●	●	●	●	●	

Chemical Resistance list

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	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
ethyl aniline							●					
ethyl benzene			○		⊙		●	○				
ethyl benzoate							●					
ethyl cellulose			⊙									
ethyl chloride			⊙				●	○				
ethyl cyanide												
ethyl dichloride			○					○				
ethyl ether			⊙									
ethyl glycol	●	●	⊙					●				
ethyl glycol acetate 100%			○									
ethyl oxalate			●									
ethyl pentachlorobenzene												
ethyl silicate												
ethylamine												
ethylbenzene												
ethylcellulose												
ethylene												
ethylene chloride							●	○				
ethylene chlorohydrin							●					
ethylene dichloride					○			○				
ethylene glycol			⊙		●		●	●				
ethylene oxide								●				
ethylene trichloride												
ethylenediamine							●					
ethylidene chloride								○				
ethylpentachlorobenzene			◎									
etznatron	◎	○								◎	○	
F fat, general	◎	●	●	●	●	●	●	●	●	●	●	
ferric chloride	●	●	●					⊙		●		
ferric sulfate	●	●				●				●		
fertilizer, dry	●	●	●	●	●	●	●	●		●	●	
fir-needle oil							●					
fish oil	◎	●	●	●	●	●	●	●		●		
fish oil 70°C	○	○	○	○	○	○	○	◎		⊙		
fixative (photo)							●					
floor wax							●					
flour	◎	●	●	●		●	●	●	●	●	●	
fluoboric acid								○				
fluorine												
fluorobenzene												
fluorosilicic acid												
fluosilicic acid								⊙				
foamclean SU 930® 10%, cleaning agent		⊙	⊙	⊙								Lever, NL
formaldehyde 36%	⊙	●	○		●	⊙	●	⊙				
formalin	⊙	●					●					
formamide					●		●	●				
formic acid 100%	○	○	○	○			●	⊙			◎	
formic acid 10%			○	○	⊙		●	●			●	
formic acid 50%			○	○	◎		●	●			⊙	
formol												
freon 11			○				●	●				
freon 113			⊙				●	●				
freon 114			●				●	●				
freon 12			●				●	●				
freon 13b1			●				●	●				
freon 22			○				●					
freon mf			◎				●					
freon t-p 35			●				●					
freon t-wd 602			●				●					
freon ta			●				●					

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		PVC		PUR				PE/TPE-E		Si			
		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	freon tc			●				●					
	freon tf			●				●					
	freon tmc			⊙				●					
	frigen							●					
	fruit acids	●	●	●	●			●	●		●		
	fruit juice	●	⊙	●	●			●	●		●	●	
	fuel oil	○	●	⊙	●	●	●	●	●		●		
	fumaric acid 10%					●			⊙				
	fungicides							●					
	furan												
	furfural							●					
	furfuryl alcohol							●					
G	gallic acid (tannic acid)			○				●					
G	galvanizing liquor							●					
G	gas liquor							●					
G	gasoline	○	●	●	●	●	●	●	●	●	●	●	
G	gelatin			●									
G	generator gas												
G	glacid acetic acid							●					
G	glauber salt							●					
G	gluconates												
G	glucose	●	●	●	●			●	●		●	●	
G	glucose, saturated	●	●	●	●			●	●		●	●	
G	glue, depending on composition		●	●		●		●	●		●	●	
G	glutamic acid					●			●				
G	glycerin	◎	●	●	●			●	●	●	●	●	
G	glycerol	◎	●	●	●	●		●	●	●	●	●	
G	glycol	◎	●	⊙				●			●		
G	gypsum (calcium sulfate)	●	●					●	●			●	
H	heptane							●					
H	hexachlorocyclohexane							●	●				
H	hexadecane, n-												
H	hexaldehyde, n-												
H	hexane, n-			⊙		●		●	●				
H	hexanol							●					
H	hexyl alcohol			○				●					
H	honey	●	●	●	●			●	●				
H	hydraulic oil, petroleum basis	○		●			●	●	●	○	●	●	
H	hydrazine			○					○				
H	hydrobromic acid			○				●	●				
H	hydrocanic acid												
H	hydrocarbons, chlorinated - general	○	◎	○	○	◎		●	●	○	◎	●	
H	hydrochloric acid 100%	○	○	○	○	○		●	○				
H	hydrochloric acid 5%	●	●	●	●	●	⊙	●	⊙	●	●	●	
H	hydrochloric acid 20%	●	⊙	○	○	○	○	●	◎	⊙	⊙	●	
H	hydrochloric acid 35%	●	◎	○	○	○	○	●	○	⊙	⊙	⊙	
H	hydrocyanic acid							●	⊙				
H	hydrofluoric acid	○	○	○				●	◎				
H	hydrogen	●	●	●			●		●		●		
H	hydrogen peroxide 30%	●	●					⊙			●		
H	hydrogen sulfide								●				
H	hydroquinone					⊙		●	⊙				
H	hydroxylamine hydrochloride					●			●				
H	hypo							●					
I	ink, depending on composition	○	◎			●		●	●	●	●		
I	insecticides, aqueous dispersion							●					
I	insecticides, oil-solution							●					
I	insecticides, powder							●					
I	iodine							●					

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		PVC		PUR				PE/TPE-E		Si			
		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	iodine pentafluoride			○									
	iodine tincture							●					
	iodophor							●					
	iron chloride							●					
	isobutanol							●					
	isobutyl alcohol			○				●					
	isocyanate												
	isododecane												
	isooctane			⊙				●	●				
	isophorone			⊙									
	isopropanol				○			●	●			●	s. isopropyl alcohol
	isopropyl acetate			●				●					
	isopropyl alcohol		●		○			●	●				Ropanol black antistatic ○
	isopropyl chloride												
	isopropyl ether			⊙				●					
J	jam	○	●	●				●	●			●	
K	kerosene	○	◎	⊙			⊙	●	●	●	●	●	
	ketchup	●	●	●				●	●				
	ketones, general												consult ICS HHW
L	lacquer solvents	○	◎	○				●	●	●	●	●	
	lacquer, general	○	◎	○				●	●	●	●	●	
	lactic acid, high concentration	●	●	◎	◎			●	●			⊙	
	lactic acid 5%	●	●	●	●			●	●	●	●	●	
	lactic acid 37%	●	●	⊙	⊙			●	●	●	●	⊙	
	lanolin							●					
	lard	○	●	●				●	●			●	
	lasuren SU 934® 10%, cleaning agent		⊙	○	○								Lever, NL
	latex					●		●		●	●	●	
	lauryl alcohol							●					
	lauryl sulphate							●					
	lavender oil												
	lead acetate							●					
	lead chloride							●					PbC12
	lead nitrate 10%					●		●	●				
	lead oxide							●					
	lemon oil							●					
	lime milk							●					
	lime, slaked							●					
	lime, suspension												
	lime, unslaked							●					
	lindane powder							●					
	linolenic acid												
	linseed oil	⊙	⊙	⊙				●	●			●	
	lotion (hair, shaving)							●					
	lpg			●				●	●				
	lubrication oil, petroleum basis	○	⊙	⊙				●	●				
	luposol												
	lye, general (pH > 9)	⊙	○	⊙				●	●				
M	magnesium chloride	●		●				●	●				
	magnesium hydroxide			●					●				
	magnesium oxide							●					
	maleic acid							●	●				
	maleic acid 10% (in ethyl alcohol)					⊙			●				
	margarine	○	●	●	●			●	●			●	
	mayonnaise	○	●	●	●			●	●			●	
	menthol							●					

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	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
mercaptoimidazoline								⊙				
mercuric chloride							●					
mercurochrome			●				●	●				
mercury							●					
mercury oxide		●										
mertect thibendazoleum												
mesityl oxide	●	●				●				●		
metal salts, general			⊙									
methane							●					see methyl alcohol
methanol			○									
methoxy propyl acetate 25%							●					
methyl acetate	◎	●	○		⊙		●	●	○	●	●	
methyl alcohol		○										
methyl bromide		◎										
methyl cellosolve												
methyl chloride	○	◎	○		○	◎	●	⊙	◎	●	●	
methyl ethyl ketone												
methyl formate					◎		●	●			●	
methyl isobutyl ketone							●	●			●	
methyl isopropyl ketone												
methyl oleate		◎										
methyl oxitol		◎		●						●		
methyl oxitol acetate							●					
methyl salicylate												
methylaniline, N-	○	⊙	◎	⊙	⊙	◎	●	●	●	●	●	
methylated spirits	○	○	○	○	○	○	●	○	○	○		consult ICS HHW
methylene chloride		◎	●							●		
methyloxitol acetate	◎	●	○	●		●	●	●	●	●	●	
milk and dairy produce	◎	●	●	●	●	●	●	●	●	●	●	
mineral oil and fat	○	⊙	●	●	●	●	●	●	●	●	●	
mineral spirits	●						●					
minerals	●	●				●	●			●		
Mohr's salt	●	●				●	●	●	●	●	●	
molasses	○	○	○	○	○	○	●	◎		○		
monochlorobenzene	○	○							◎			
monostyrene							●					
morpholine	○	●					●	●			●	
motor oil							●					
mustard												
nail varnish			◎		⊙		●	○	○			
naphta			⊙					○				
naphtalene					○			◎				
naphtalene hydroxide												
naphtol												
natrium phosphate	○		⊙				●	●				
natural gas												
natural resin (wood)							●					
nickel chloride							●					
nickel oxide			●				●					
nickel sulfate							●	●			●	
nicotine	●	●	◎		●	○	⊙	○		●		
nitric acid 0.5%							○	○				
nitric acid 0.5% 60°C	●	●	◎		○	○	⊙	○		●	●	
nitric acid 5%							○	○				
nitric acid 5% 60°C	●	○	◎			○	⊙	○		◎	●	
nitric acid 30%							○	○				
nitric acid 30% 60°C							⊙	○				
nitric acid 50%							○	○				
nitric acid 50% 60°C	◎	○	○			○	○	○		◎	○	
nitric acid 70%			○				○	○			○	
nitric acid 93%												

Chemical Resistance list

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	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
petroleum	◎	●	⊙			●	●	●		●	●	
petroleum ether	○	◎			●		●	●				
phenetole												
phenol	◎	◎	○		○		●	○		●	○	
phenol sulphonic acid							●	○			○	
phenolsulfonate												
phenoxy-acetic acid							●					
phenyl												
phenyl phenol							●					
phenylhydrazine												
phosgene												
phosphates												
phosphating liquor (for metal)							●					
phosphonates												
phosphoric acid 20% 70°C	○	⊙	●				●	○			○	Ropanyl 85 ○
phosphoric acid 42.5%	●		●		⊙	●	●	●			●	Ropanyl 85 ○
phosphoric acid 85%	●		●		○	●	●	⊙			○	Ropanyl 85 ○
phosphoric acid, low concentration	●		●		●	●	●	●			●	Ropanyl 85 ○
phosphoric anhydride												
phospor chlorides							○					
phtalic acid							●					
phtalic anhydride	⊙	●					●					
picric acid			⊙				●					
pigments, dry	●	●					●	●			●	
pine oil							●					
pinene												
piperidine												
pitch	○	●	●				●	●			●	
plasticisers	○	⊙	◎		●		●	●	●	●	●	
polishing wax							●					
polycarbonates												
polyester resin 945	◎	◎				◎			⊙	◎		
polyethylene	●	●					●	●			●	
polyol							●	●		●	●	
polystyrene	●	●					●	●				
polyvinyl acetal	○	◎					●	●				
polyvinyl acetate							●					
potash → see potassium carbonate							●	●			●	
potassic salt												
potassium bromate					●		●	●				
potassium bromide 10%	●	●	●		●	●	●			●		
potassium carbonate							●	●			●	
potassium chlorate							●					
potassium chloride			●				●					
potassium chromate 10%	●	●			●	●	●	●		●	●	
potassium chromate, saturated	●	●					●			●		
potassium cuprocyanide			●									
potassium cyanide	●	⊙	●				●					
potassium dichromate			●				●					
potassium dichromate 10%	●	●					●	⊙		●		
potassium dichromate, saturated	●	●					●			●		
potassium hydroxide 10%	◎	○	⊙		●		●	●		◎		(potash lye)
potassium hydroxide 25%	◎	○			●	◎	●	●		○		(potash lye)
potassium hydroxide 50%	◎	○			●		●	●		○		(potash lye)
potassium iodate	●	●					●			●		
potassium iodide							●					
potassium nitrate			●				●					
potassium permanganate	●	◎					⊙			●		
potassium persulfate							●					
potassium phosphate							●					
potassium sulfate			●				●					
potassium sulfide							●					

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		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	potassium sulfite							●					
	powergel SU 628® 10%, cleaning agent		⊙	⊙	⊙								Lever, NL
	producer gas			●									
	propane			⊙				●	●			●	
	propanol		●					●					Ropanol black antistatic ○
	propargyl alcohol							●					
	propionaldehyde					○			○				
	propionic acid	●	⊙					●					
	propyl acetate, n-												
	propyl alcohol			○				●					
	propyl nitrate, n-												
	propylene							●	●			●	
	propylene dichloride												
	propylene glycol							●					
	propylene glycol monomethyl ether 50%			○									
	propylene oxide												
	protein solutions		●						●				
	prussic acid							●					
	pyranol			⊙									
	pyridine (azabenzene)					●		●	○				
	pyrrole												
Q	quat SU 319® 5%, cleaning agent		⊙	●	⊙								Lever, NL
	quaternary ammonium salt												
	quinine (and salts)							●					
R	radiation			●									
	rapeseed oil			⊙				●	●			●	
	ratbane							●					
	RD plus SU727® 10%, cleaning agent		⊙	●	⊙								Lever, NL
	red oil			●									
	reddy SU928® 10%, cleaning agent		●	●	⊙								Lever, NL
	resin oil												
	resins, aromatic	◎	⊙	●									
	resorcine (resorcinol)							●					
	ricinus oil							●	◎				
	rustex SU 473® 10%, cleaning agent		⊙	○	○								Lever, NL
S	safe SU 931® 10%, cleaning agent		●	●	⊙								Lever, NL
	sal ammoniac → see ammonium chloride			●				●	●			●	
	salad oil	○	●					●	●			●	
	salad sauce	○	●					●	●			●	
	salicyl aldehyde							●					
	salicylic acid							●					
	salmiac							●					
	salts, general	●	●	●			●						
	saponin							●					
	scholinchloride		●										
	scouring powder							●					
	sea water	●	●				●	●	●		●	●	
	sesame oil							●	●			●	
	sewage			○									
	shampoo							●					
	shellac												
	silica gel					●			●				
	silicate esters			●									
	silicic acid 90°C						○						
	silicone grease and oil	○		●				●	●			●	

Chemical Resistance list

● = resistant
◐ = limited resistant
◎ = very limited resistant
○ = unfit

June 2001, page 13

		PVC		PUR				PE/TPE-E		Si			
		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	potassium sulfite							●					
	powergel SU 628® 10%, cleaning agent		◐	◐	◐								Lever, NL
	producer gas			●									
	propane			◐				●	●			●	
	propanol		●					●					Ropanol black antistatic ○
	propargyl alcohol							●					
	propionaldehyde					○			○				
	propionic acid	●	◐					●					
	propyl acetate, n-												
	propyl alcohol			○				●					
	propyl nitrate, n-												
	propylene							●	●			●	
	propylene dichloride												
	propylene glycol							●					
	propylene glycol monomethyl ether 50%			○									
	propylene oxide												
	protein solutions		●						●				
	prussic acid							●					
	pyranol			◐									
	pyridine (azabenzene)					●		●	○				
	pyrrole												
Q	quat SU 319® 5%, cleaning agent		◐	●	◐								Lever, NL
	quaternary ammonium salt												
	quinine (and salts)							●					
R	radiation			●									
	rapeseed oil			◐				●	●			●	
	ratbane							●					
	RD plus SU727® 10%, cleaning agent		◐	●	◐								Lever, NL
	red oil			●									
	reddy SU928® 10%, cleaning agent		●	●	◐								Lever, NL
	resin oil												
	resins, aromatic	◎	◐	●									
	resorcine (resorcinol)							●					
	ricinus oil							●	◎				
	rustex SU 473® 10%, cleaning agent		◐	○	○								Lever, NL
S	safe SU 931® 10%, cleaning agent		●	●	◐								Lever, NL
	sal ammoniac → see ammonium chloride			●				●	●			●	
	salad oil	○	●					●	●			●	
	salad sauce	○	●					●	●			●	
	salicyl aldehyde							●					
	salicylic acid							●					
	salmiac							●					
	salts, general	●	●	●			●						
	saponin							●					
	scholinchloride		●										
	scouring powder							●					
	sea water	●	●				●	●	●		●	●	
	sesame oil							●	●			●	
	sewage			○									
	shampoo							●					
	shellac												
	silica gel					●			●				
	silicate esters			●									
	silicic acid 90°C						○						
	silicone grease and oil	○		●				●	●			●	

Chemical Resistance list

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June 2001, page 14

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
silver chloride							●					
silver nitrate			●				●					
silver polish							●					
skydrol 500			○					●				
skydrol 7000			○									
soap	●	●	●		●		●	●			●	
soda							●					
sodium												
sodium acetate	●	●	○				●			●		
sodium bicarbonate	●	⊙					●					
sodium bisulfide					●							
sodium bisulfite 10%	●	⊙								●		
sodium bisulfite 25%	●	⊙										
sodium carbonate 10%	●	●					●		●			
sodium carbonate 25%	●	●					●			●		
sodium chlorate	●	●				●	●	●		●		
sodium chloride			●				●	●				
sodium chlorite												
sodium cyanide							●					
sodium dichromate 10%					○		●	⊙				in sulfuric acid 25%
sodium hydrosulfate 10%					●		●	●				
sodium hydrosulfide 10%					●			●				
sodium hydroxide 10%	◎	○	⊙				●	●		◎	○	
sodium hydroxide 20%							●	●				
sodium hydroxide 25%	◎	○					●	◎		◎	○	
sodium hydroxide 50%	◎	○					●	○		◎	○	
sodium hydroxide 100%	◎	○					●	○		◎	○	
sodium hypochlorite							⊙					
sodium hypochlorite 10%	●	●	○				⊙	●		●		
sodium hypochlorite 10% 60°C							○					
sodium hypochlorite 60°C							○					
sodium nitrate					●		●	●				
sodium nitrite 10%					●		●	●				
sodium perborate							●					
sodium percarbonate												
sodium peroxide			○									
sodium phosphate	●		●				●					
sodium sulfate	●	⊙	●				●					
sodium sulfide							●					
sodium sulfite	●						●					
sodium thiosulfate 10%	●	●				●	●			●		
sodium vanadate	●	⊙										
soja		●	⊙									
sojabean oil		●	⊙		●			⊙				
soldering fluid							●					
solvent naphta	○	●					●	●			●	
solvents, general	◎	○	○	○	◎	○	●	●			●	consult ICS HHW
solvesso 100					⊙			○				
solvesso 150					⊙			○				
soy oil							●					
spindle oil							●					
spirit							●					
stafilex quat® 5%, cleaning agent		⊙	●	⊙								Lever, NL
stannic chloride	○							●			●	also ' tin chloride'
stannous chloride 15%								⊙				
starch	●	●	●	●			●	●			●	
steam, wet - low pressure							○	◎	●	◎		
stearic acid	●		●				●	⊙				
stearin		●										
stoddart solvent			●									
strontium sulfate 10%					●		●	●				
styrene	◎						●	○				

Chemical Resistance list

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June 2001, page 15

	PVC		PUR				PE/TPE-E		Si			
	Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
sublimate							●					
succinnic acid							●					
sucrose	○	●	●	●			●	●			●	
sugar beet liquor												
sugar, raw	●	●	●	●	●	●	●	●		●	●	
sugar, refined	●	●	●	●	●	●	●	●		●	●	
sulfamic acid												
sulfite liquor												
sulfolane								●				
sulfur chloride							○					
sulfur dioxide	◎	◎						●				
sulfur trioxide							○	●				
sulfur, sublimated	⊙											
sulfur, sublimated 70°C	⊙											
sulfuric acid 5%	●	●	⊙		●		●	●		●	●	
sulfuric acid 20% 70°C	●	●	○	○			●	●				
sulfuric acid 50%	●	⊙	○	○			⊙	●				
sulfuric acid 60%	●	⊙	○	○	⊙		⊙	○		●		
sulfuric acid 90%	○	○	○	○			◎	○				
sulfuric acid 100%	○	○	○	○			◎	○		○		
sulfuric acid, fuming			○	○			◎	○				
sulfurous acid			○					⊙				
sulfuryl chloride							○					
sulphur							●	●				
superphosphate							●					
synthetic resin	◎	●				●				●		
syrup	●	●	●	●			●	●			●	
T												
talcum grease	●	●					●	●			●	
talcum powder	○	●					●	●			●	
tannic acid		⊙	●			●	●	●		●	●	
tannin							●					
tar	○	●	●	●	●	●	●	●	●	●	●	
tar oil							●					
tartaric acid			●				●	⊙				
tea	●	●	●	●			●	●			●	
terpineol			⊙									
tetrachloroethane							●	○				
tetrahydrofurane	○	○				◎	●	◎				
tetrahydronaphtalene												
tetralin							●					
thiazole		●										
thinner	○	○	○	○	◎	○	●	◎			⊙	
thioglycolic acid							●					
thiol												
thionyl chloride							○					
thiophene							●					
thomas meal							●					
titanium tetrachloride							○					
titanium white	●				●		●	●			●	
tobacco	●	●	●			●	●	●		●	●	
toluene	○	◎	◎		◎	⊙	●	⊙	○	○	◎	
tomato juice	●	●	●	●			●	●	●	●	●	
toothpaste							●					
transformer oil							●					
transmission fluid-a	○	●	●				●	●	●	●	●	
triacetin			○									
triaryl phosphate			⊙									
tributoxyethyl phosphate			○									
tributyl phosphate			○									
trichloroacetic acid							●					
trichlorobenzene							●					

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June 2001, page 16

		PVC		PUR				PE/TPE-E		Si			
		Flexam	Nonex	Ropanyl	Ropanol	Ropanex	Ropan BS	Peflex	Amtel	Silam R	Silam K	Polyester fabric	Remarks
	trichloroethane	○	○	○		○		●	○		○		
	trichloroethylene	○	○	○			○	●	○		◎		(tri)
	tricresyl phosphate			◎				●					
	triethanolamine			○				●	○				
	trinitrotoluene												
	trioctyl phosphate												
	triphenyl phosphate												
	trisodium phosphate								●				
	trixylenyl phosphate	⊙	⊙				●						
	tung oil			⊙					⊙				
	turpentine	○	◎	○	◎	◎	◎	●	●			●	
	turpentine varnish							●					
U	ultraviolet light	⊙	⊙	⊙	●	⊙	⊙	⊙	●	●	●	●	⊙: colors fading
	urea					●		●	●				
	urea formaldehyde												
	urine												
V	vanilla extract							●					
	varnish							●					
	vaselin	○						●	●			●	
	vegetable juices	●	●	●	●			●	●			●	
	vegetable oil and fat	◎	●	●	●	●	●	●	●		●	●	
	vinegar	●	⊙					●	●			●	
	vinyl acetate												
	vinyl chloride	○	●					●	●			●	
W	water	●	●	●	●	◎	●	⊙	●	●	●	●	
	water 95°C	○	○	○	○	◎	○	○	◎	●	◎	●	
	waterglass							●					
	wax, bees-							●					
	wax, carnauba							●					
	wax, mineral-oil							●					
	wetting agent 60°C		⊙									◎	
	whey	○	●	⊙	⊙	◎		◎	●		●	●	
	whiskey			●									
	white lead							●					
	white spirit	○	●	●	●	●		●	●			●	
	wine			●					●			●	
X	xanthene	◎	○										consult ICS HHW
	xylene	○	◎	◎		⊙	⊙	●	●		⊙	●	
	xylenol												
Y	yeast	○	●	●	●			●	●			●	
	yoghurt	●	●	●	●			●	●			●	
Z	zinc chloride							●	●				
	zinc oxide	●	●	●	●	●	●			●	●	●	
	zinc white							●					

Ammeraal Beltech
Innovation & Service in Belting

Approvals

FDA Approvals

FDA US Food and Drug Administration

US Federal Agency approves materials for use with food contact.

The uni-chains product range holds the following FDA approved materials:

- POM-D, POM-DI, POM-LF, POM-SLF, POM-NL and POM-S
- PP, PP-I, PP-MI, PP-HW
- PE, PE-I, PE-MI
- PVDF
- PA6, PA6.6, PA6.6-GFH
- UV additive
- PBT

FDA & EC1935/2004

Ammeraal Beltech Modular A/S hereby declares that the materials in the belt type meet the requirements mentioned in Title 21:

Code of Federal Regulations, issued by the FDA according to paragraph 177.2600 for all wrapped and unwrapped foodstuffs.

The listed materials comply with the requirements:

- POM (D, DI, LF, SLF & SX)
- PP & PP-I
- PE & PE-I
- PA6.6, PA6.6-GFH

USDA Approvals

US Department of Agriculture

USDA evaluates and accepts products and equipment for use in the dairy, meat, and poultry industries. uni-chains belts listed on this page are included in the USDA's Accepted Meat and Poultry Equipment book as accepted for food contact and packaged goods respectively. In addition, USDA inspectors accept belt styles on an individual plant basis.

USDA Dairy Grading Branch has issued Equipment Acceptance Certificates for the belt types listed on this page under USDA Dairy Accepted.

USDA Accepted Meat and Poultry Equipment (Food Contact)

- uni SNB series
- uni OPB 4C, uni OPB 4V C, uni OPB 4V 23%, uni OPB 4V 36%, uni OPB 8C and uni OPB 8 25%

USDA Accepted Meat and Poultry Equipment (Packaged Product only)

- uni Light
- uni SNB series
- uni OPB 4C, uni OPB 4V C, uni OPB 4V 23%, uni OPB 4V 36%, uni OPB 8C and uni OPB 8 25%

USDA Dairy Approval

- uni MPB, uni MPB G, uni MPB GE, uni MPB N, uni MPB NE, uni MPB 18%, uni MPB 20% and uni MPB 22%
- uni CNB C, uni CNB 18% and uni CNB 22%

USDA Equipment Acceptance Certificate in compliance with NSF-3A-14159-003. Hygiene requirements for design of mechanical belt conveyors used in meat and poultry processing.

The approval covers the following products:

- uni MPB Single Link and bricklayed belts
- uni MPB Product Supports and Side Guards
- uni MPB Sprockets
- uni Flex ONE
- uni X-MPB

uni chains

Viking Conveyor

Ammeraal Beltech
Innovation & Service in Belting

12 Conveyor Check Points

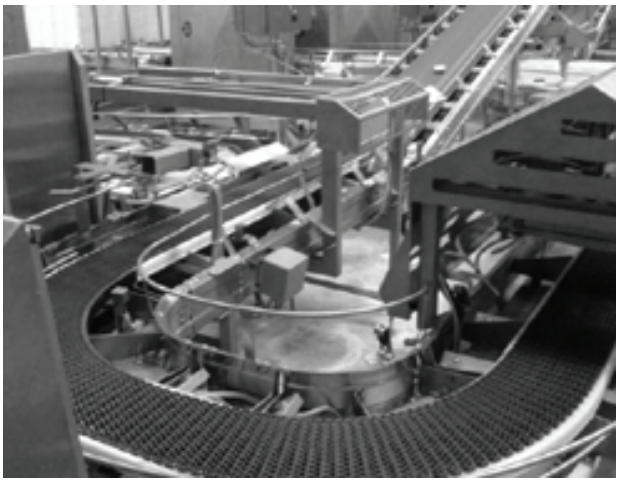
– and spinning again!

uni chains

Conveyor Viking

☎ 0800 845 464 orders@vikingconveyor.co.nz

12 Checkpoints – table of contents



1. Plastic properties and temperature tolerance

- **ALWAYS CHECK** that the chosen plastic material is suitable for the temperature in which the belt is to work and thus will be exposed to (please see the table below).
- Be aware that the temperature will affect the belt strength.
- Be aware of expansion of the plastic material.

Material	Properties	Working temperature	Coefficient of expansion mm/ m x °C
POM (acetal)	High tensile strength Low elasticity and expansion Low friction Good load capacity Absorbs little water – up to 0.9% volume	Temp. -40 to +90°C	0.12
PE	Low tensile strength High impact resistance Soft – rarely shatters Good at low temperatures Good material with SS pins for sand, steel shavings, etc. Does not absorb water Big heat expansion	Temp. -50 to +80°C	0.18
PP	Medium tensile strength Good with chemicals Does NOT stand frost Endures high temperatures Absorbs little water – up to 0.9% volume	Temp. +1 to +104°C (avoid impact at temperatures below +8)	0.13
PA6.6 (nylon)	High tensile strength Endures high load Good material in many connections Good stiffness in a wide temperature area Absorbs relatively much water – up to 8.5% volume	Temp. -40 to +140°C	0.11

2. Plastic material – identification

Should the link not be marked with the type of material, the most current types of plastic can be identified as follows:

	Fire test	Smell after extinction	Water test
PP	Blue flame Yellow top Swells and drips	Sweet and like burning oil	Floats
PE	Blue flame Yellow top Drops can burn	Stearin	Floats
POM	Blue flame No smoke Drops can burn	Formaldehyde	Sinks
PBT	Yellow flame Smoke Drips	Sweet Difficult to define but recognizable	Sinks
PA	Blue flame Yellow top Melts and drips	Sharp – burning wool or horn	Sinks

3. Placing of sprockets

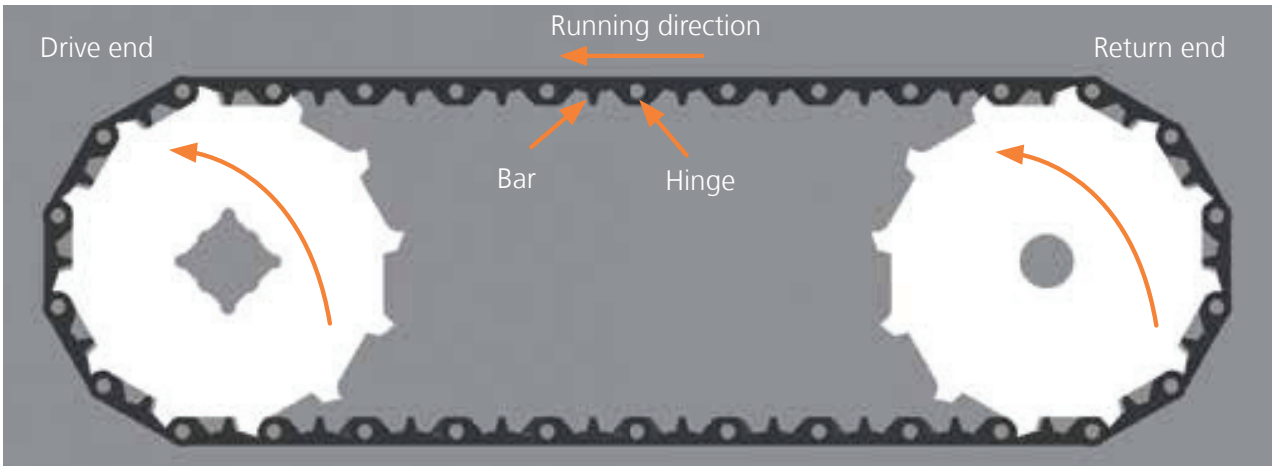
- **CHECK** that the sprocket is placed evenly on the entire axle – as rule of thumb; one sprocket for every 150 mm in order to counteract the sagging of the belt between the sprockets. Two sprockets as minimum.

  We recommend fastening the center sprocket if the belt width is more than 250 mm. By doing so, you can control the temperature expansion, as it would be iden tical on both sides of the fastened sprocket.

- Fix the center sprocket with uni-chains Retainer Rings. The other sprockets must be able to float on the axle in order to follow the changes in the belt width in case of fluctuation of temperatures (see photo at foot of page 6).

- Please pay attention when mounting sprockets for the following belt types: Uni S-MPB, uni MPB, uni CPB, uni RTB, uni ECB, uni XLB and uni X-MPB.

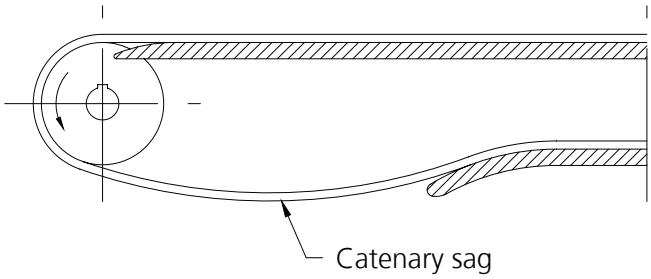
  IMPORTANT! To be mounted so the 'hooks' of the teeth point away from each other. Must pull on hinge – **not** on the 'bar'!



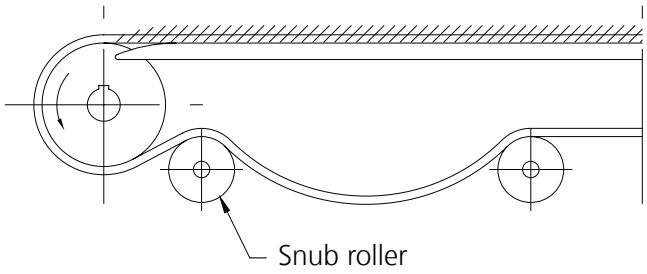
4. Sprocket engagement

- **CHECK** sprocket engagement – if the belt 'jumps on sprockets', it can be a sign of lacking sprocket engagement.

- In order to ensure a good sprocket engagement, it is important to have catenary sag. The sag helps tightening the belt and secure that changes in the belt length will be automatically offset.



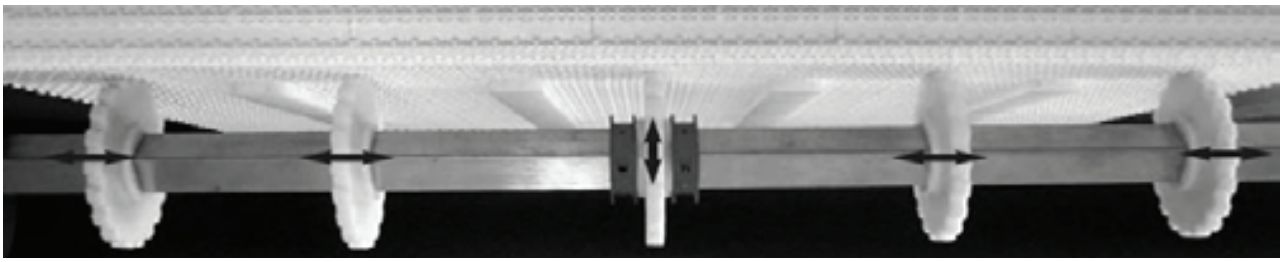
- Mounting of 'snub rollers' improves sprocket engagement and thus increa ses the power transferred from the sprocket.



- The best transmission of power between sprocket and belt and the most regular operation is achieved by using sprockets with as many teeth as possible.

- Big sprockets reduce the risk of pulsation (the belt is running irregularly due to the 'polygon effect').

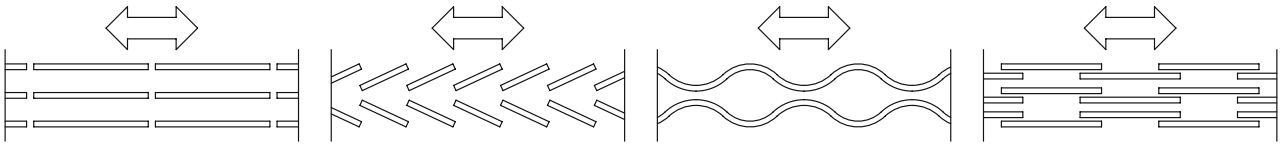
- An increase of the speed will have a positive influence in case of pulsation (the higher speed, the less pulsation).



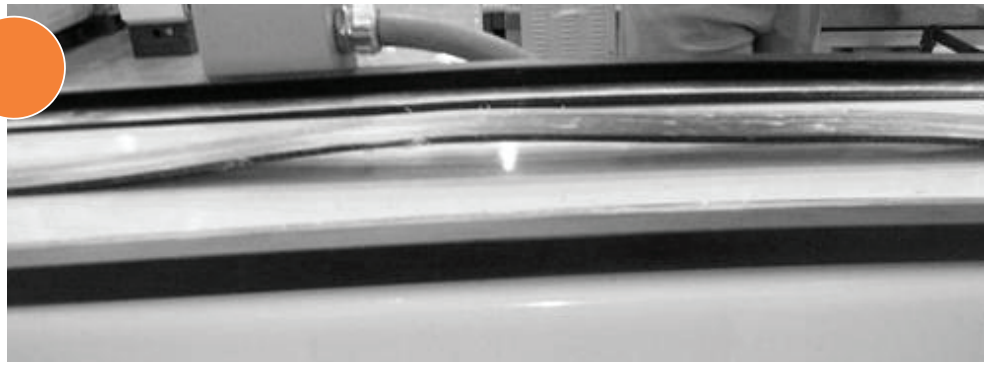
5. Support of drive side (wearstrips)

- **CHECK** that the free distance between wearstrips on the drive side is maximum 150 mm. Thus it can be avoided that the belt bends down between the wearstrips (less distance in case of heavy items).

- Different types of wearstrips:
  - **Straight** – easy and cheap method. Disadvantage: wear is concentrated on the same area.
  - **Fishbone** – wear is spread evenly. Dirt, dust, etc., will be transported from the area.
  - **Serpentine** – wear is spread over the entire belt.
  - **Parallel overlap** – cheap method, good for environments with wide fluctuation of temperatures.



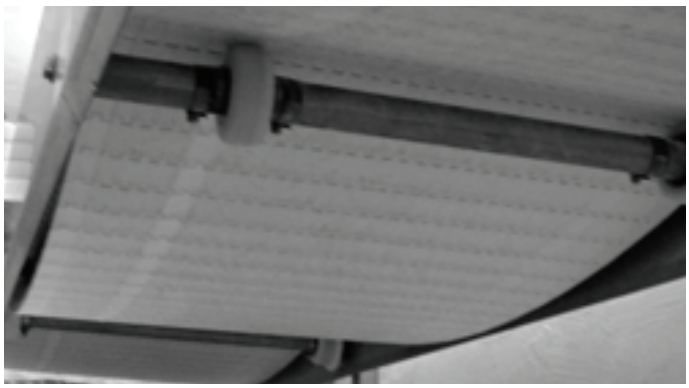
- Fasten only profiles in one end in order to avoid that they bend up in case of temperature rise.

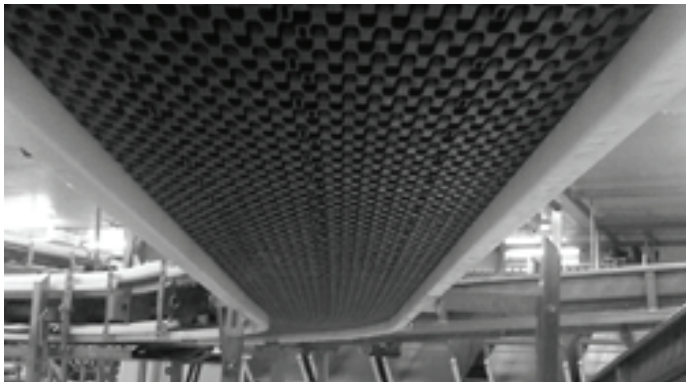


Wearstrip bending up

6. Support of return side (wearstrips)

- **CHECK** that the free distance between wearstrips on the return side is maximum 300 mm.
- **IMPORTANT!** When supporting with return rollers/return shoes, the distance between the rollers/shoes must vary. If the distance is identical, it can cause pulsation.
- **NB!** In case of heavy belts, longitudinal return profiles should be avoided if possible as it gives big and inappropriate wear marks on the top side of the belt.
- **CHECK** that the surface on the longitudinal return profiles are not 'polluted' by dirt as this also will cause unnecessary wear on the top side of the belt.



7. Profiles

- **CHECK**

1. that transfers between profiles are smooth so the belt does not run against the profiles. Thus, among other things, damaged side profiles can be avoided.
2. that all screws/bolts used for fastening the profiles are countersunk so the belt does not get in contact with the screw heads. If there is contact, the belt modules will show signs of wear.
3. that the profiles have space for elongation/contraction in case of change in temperature.
4. that the temperature in the profiles is not too high (heat generation due to friction). Pay special attention in case of plastic profiles for sideflexing belts.

   A high temperature in a plastic profile will increase the friction and thus the pull force in the belt which can cause uneven operation.

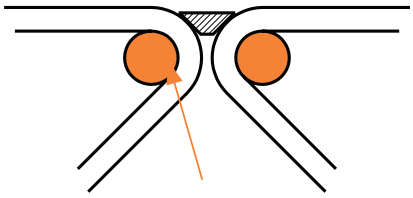
   If the profile temperature is too high, another profile material, e.g. stainless steel or Nylatron NSM, can be used with advantage.
5. that between the profiles and belts there is space enough so the belt can expand in case of a temperature rise, so the belt does not get jammed and bends up.
6. that the belt cannot fall out of the profiles. Pay special attention to curves, and to the return section.

8. Transfers (nosebar/rollers)

- **CHECK** transfers and nosebars – should non-rotating rollers eventually be exchanged with rotating rollers?

- In case of small transfers, nosebars or rollers (solid/rotating) can be used.

- If solid rollers or nosebars are used, you have to pay attention to the increased load in the belt as well as the temperature rise that will occur between the non-rotating roller/nosebar and the belt. This can cause increased wear and in some cases more noise – especially at high speed.



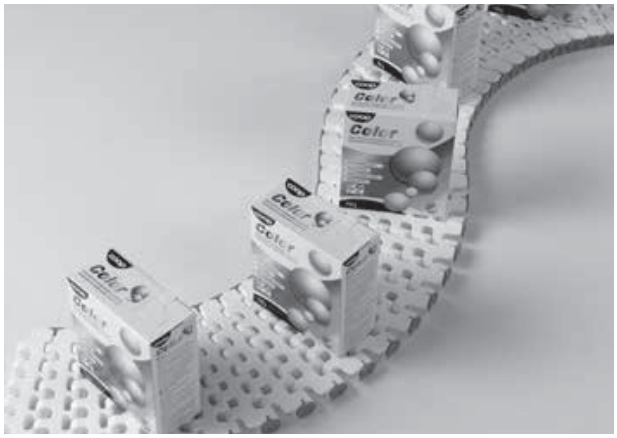
Nosebar/roller

- In case of high load or high speed, it is recommended to use rollers rotating with the belt.

- **CHECK** that rotating rollers are not stopped by dirt. Should this happen, the rollers must be cleaned immediately, so they rotate with the belt again.

9. Belt conveyors with curves

- **CHECK** that there is enough space between the profiles and the belt. The belt is not to be kept in press.
- Sprockets 'jumping'
  a) **CHECK** that all sprockets engage the right place – especially sprockets at outer radius tend to jump.
  b) **CHECK** that the straight part from the end of the last curve and to the center of the feed shaft is minimum 2 x belt width (uni FLEX ONE: 1 x belt width).
- Belt is running unevenly (pulsates).
  a) **CHECK** that the straight part from the return end and to the start of the first curve is minimum 1.5 x belt width (uni FLEX ONE: 1 x belt width).
  b) **CHECK** if the inner links in the curve vibrates. If this is the case, the reason could be that the curve is not made on minimum radius. The vibrations can be reduced by using lubrication on the inner radius.
  c) If the belt is hanging freely on the entire or some of the return part, the uneven operation can be caused by the belt vibrating in these parts (see page 9).
  d) In case of high speed and/or load, materials with high P/V value (pressure/velocity) can be necessary for the profiles in the curves, e.g. Nylatron NSM.
- Please pay attention to the fact that tabs are for hold down – not for supporting the belt sideways.



10. Incline conveyors

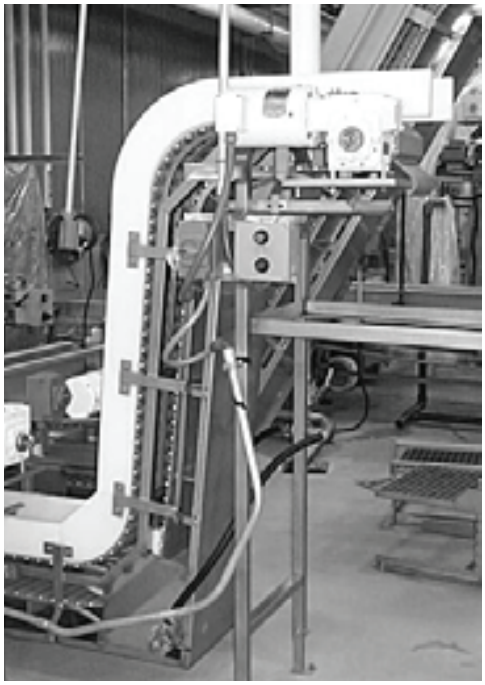
- **CHECK** that the belt does not bend upwards/downwards and thus is pulled out of the profiles (can typically occur at a belt width of more than 800 mm).

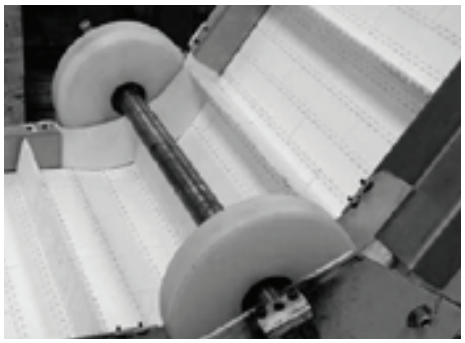
  Can be corrected by:
  - stiffening of the belt with steel pins every x pitch.
  - center indent so the belt is held down/supported with a roller.

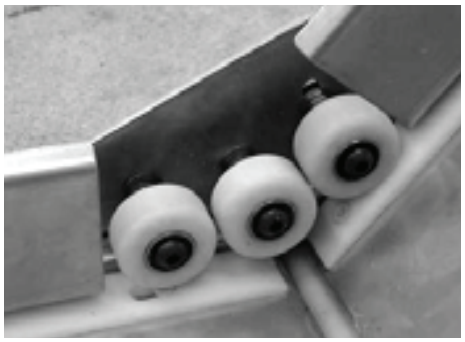
- **CHECK** that there is not unusually much wear on the sides of the belt.

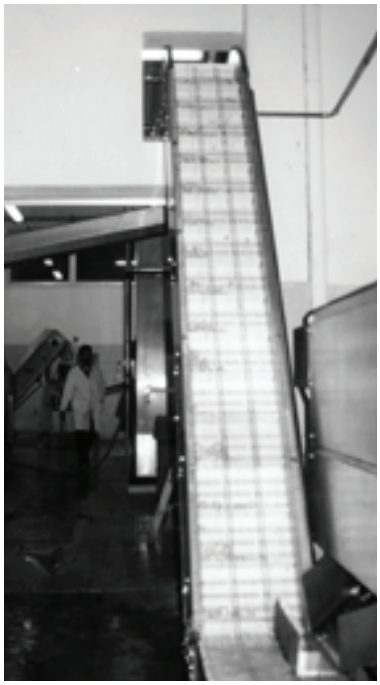
  Can be corrected by:
  - mounting of rollers for hold down in both sides, less friction, less wear.

- **REMEMBER** when ordering new belts to draw attention to the fact that it is for a Swan neck or a Z conveyor.



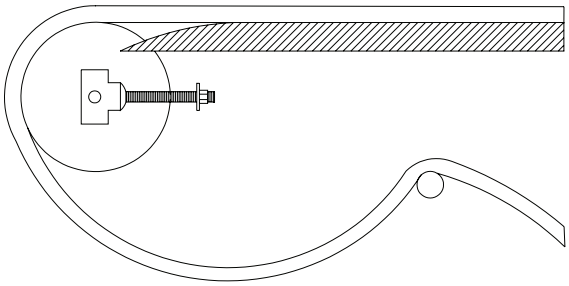




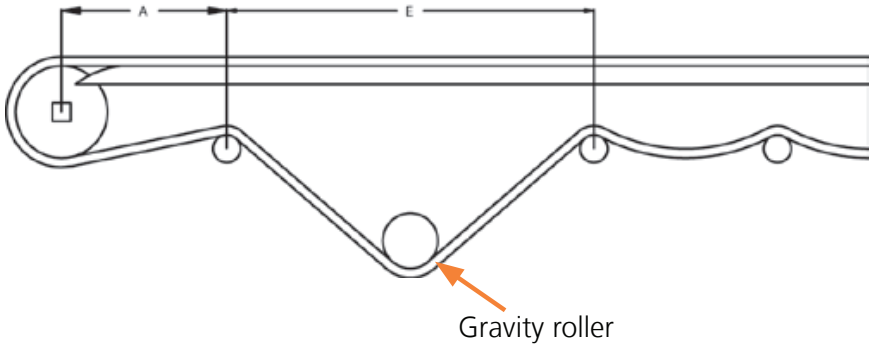


11. Tensioning

- **CHECK** the tensioning unit if you have problems with the belt breaking.
- Beware of mechanical tensioning, e.g. a screw. The risk that the tensioning will be very high is too big.



- Use instead:
  - gravity roller
  - pneumatic tensioning



- **IMPORTANT** – if a chain/belt has been broken due to overload, make sure that other links in the chain/belt do not have permanent deformation – thus minimizing the strength. Are such links not replaced, a new breakdown could occur.

12. Cleaning

- Clean with water temperature of 52-54°C.
- **ALWAYS CHECK** that the chosen detergent is suitable for use on the plastic material of which the modular belt is made.
- **WRONG** use of detergents can cause:
  - delamination of the plastic material
  - increased wear
  - shorter lifetime

  WARNING!
  If the water temperature and/or the 'foam time' is increased, the used detergent will be more 'aggressive' and thus the belt is negatively affected as described above.
- **IMPORTANT** – after cleaning the belt must 'cool down' to operating temperature before tensioning if applicable (see page13).

Download
"Cleaning Guidelines"
from www.unichains.com

VOLTA BELTING Technology

Conveying Solutions
Simply Safe & Hygienic

Governments & Consumers Expect Unblemished Safety Processes from Farm-to-Fork

Due to modern changes in eating habits, which include ready-made meals such as pre-cooked and non-preserved fresh food products (sandwiches, salads, etc.), the food industry today is under pressure to produce foods that are safer, longer lasting, more natural and better tasting. For food manufacturers this new reality has brought about new challenges to food processing and preparation.

At the same time, consumers have lobbied their governments for more stringent controls to safeguard food safety, in response to the alarming rate of recently reported food poisoning cases by the World Health Organization.

To minimize potential liability and financial damage, food manufacturers need to take all possible precautions to avoid product contamination, from the preparatory stage of raw food through the production process to packaging.

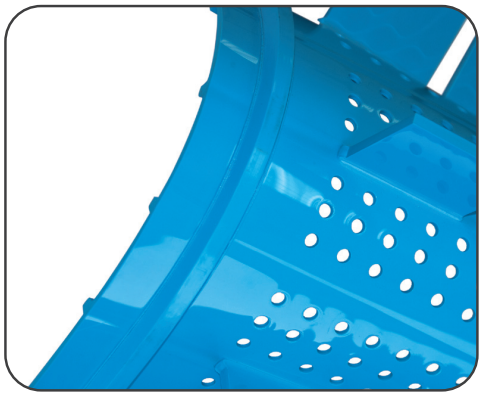
Incorporating Conveyor Belts to Your Food Safety Production Strategy

Direct contact with food as part of the processing lines means that the safety and hygiene of your conveyor belts is essential in ensuring food safety. Conveyor belts must be:

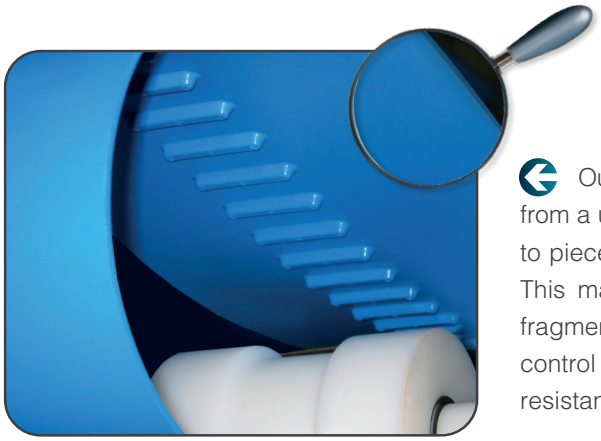
- ✓ Strong and highly durable (abrasion resistant): to handle products of various sizes, weights, shapes and consistencies (including sharp elements).
- ✓ Made of a (non-porous) material: so as not to absorb fats, liquids, and chemicals, or support the harboring of bacteria or other micro-organisms.
- ✓ Non-stick surface: that will prevent products from sticking to the conveyor belt to considerably reduce waste while reducing the build-up of dust and dirt.
- ✓ Homogeneous through and through: made from materials that will not fray or come apart at corners or edges (as conventional belts made of layered materials do after wear) and constructed without joints and pins which harbor bacteria (as in the modular belts), which will contaminate your food product.
- ✓ Reliable: to be able to withstand different mechanical, chemical and environmental conditions .
- ✓ Easy to operate: with minimal need for outside intervention such as pre-tensioning or tracking.
- ✓ Easy to maintain: providing automation reliability and precision through all processing stages even at varying temperatures.
- ✓ Easy to sanitize: efficient cleaning on site requiring low water usage and labor time.

Simply Hygienic

Volta Belting has been developing and designing conveyor belting products for industry since 1964. Our Thermoplastic Elastomer (TPE) food grade belts fully comply with the strictest hygiene requirements of the food industry, having demonstrated proven performance at thousands of installations worldwide.



Volta's uniquely innovative hygienic belting technology is known for its versatility, durability and hygiene safety – cleans quickly and effectively with less resources, and prolonged productivity. Coupled with excellent technical support from our experienced service and sales staff, we can make sure that your conveying system addresses your sanitation challenges and works for you at its best.



Our fully extruded homogeneous belts are manufactured in one piece from a uniform extruded high quality material which can be welded piece to piece by heat alone, avoiding the use of glue or other toxic materials. This makes them completely free from fraying threads or broken belt fragments that could contaminate your product and minimize critical control points. The surface of the belt is dense but flexible, making it resistant and long lasting in most working conditions.

Volta Belting Technology Material Advantage Is Simply Unique

Our belts are designed to conform to the most stringent hygiene requirements:

- Produced from thermo plastic (TPE) with resistant properties suited to difficult conditions: water, oils, fat, cold and freezing temperatures.
- Smooth non-porous surface, which repel bacteria that cause spoilage and harbor bad odors.
- Especially strong and thick belts, resistant to damage even by sharp objects.
- Flexible material that can conform to any shape.
- Highly durable material for extended conveyor life.
- Clean unblemished surface.
- Easy to clean (no soaking required), keeping water consumption and handling time to a minimum.
- Easy to install and maintain.
- Comply with EU, FDA and USDA regulations.

As a manufacturer of premium food grade conveyor belts with almost 50 years of industry experience, we understand these challenges and design belting solutions to meet every test. Volta offers tested and certified food grade belts that rise to the challenges of modern food regulations and production systems like HACCP (Hazard Analysis and Critical Control Points). HACCP is widely used in the prevention of food safety hazards.
For more information on HACCP visit the official site at www.haccpalliance.org

Simply Safe & Hygienic VOLTA BELTING Technology

Today, the belting industry offers two main systems: fabric coated belts (also known as “ply” belts) and modular belts.

Fabric coated belts fray from continuous belt motion, and are made from fabrics adhered to thin layers of TPU, PVC or rubber coating. This material can crack on impact and is incapable of withstanding cold temperatures, water, oils and fats without severe damage. They are vulnerable at the joints and to abrasive materials (such as salts, seasonings, frozen goods and the like) that cause delamination (loss of coating). Once the fabric is exposed, bacteria and micro-organisms act on left-over food remnants that stick to the belt and quickly form ingrained contamination.

Modular Belts, marketed to the food industry for over a decade, cannot offer the same hygiene standard as compared with our homogeneous belts. From day one, modular belts cannot be cleaned effectively. The belt is composed of replaceable moving parts (which are brittle and easily damaged) that can provide bacteria with a breeding ground of up to 30% more surface area than a comparable flat belt. With so many hidden joints, pins and recesses, some processors are obliged to remove the belts from the conveyors to soak and clean them. In most cases, this is done only after the belt has run for hours holding food remnants in direct contact with the products.

SuperDrive™ A Homogeneous, Positive Drive Conveyor Belt

SuperDrive™ is a leading global product meeting strict hygiene standards directed by the food industry. It is a positive drive belting system designed from Volta’s unique 100% homogeneous and chemically resistant thermoplastic materials.

The belt is designed with a smooth running surface and fully extruded integrated teeth on the underside of the belt to assist the drive side function and simultaneously serve as a built in guide mechanism eliminating tensioning and off-tracking.

- ✓ Low bacteria counts: translating into reduced product waste & extended product shelf life.
- ✓ Easy & effective cleaning: no need to leave the belt in “caustic bath”.
- ✓ Eco friendly: no need for harsh detergents.
- ✓ Dramatically reduces water consumption & water treatment costs.
- ✓ Less cleaning time converts to more production time.
- ✓ Quick & easy to repair.

Standards & Associations

USDA Approved

FDA/USDA Approved

NSF/ANSI/3-A 14159-3 - 2010 Compliance

EHEDG (European Hygienic Engineering & Design Group) member

HACCP (Hazard Analysis and Critical Control Points) principles

EU Regulations No.: 10/2011, 1935/2004

EU Commission Directive 2002/72/EC

ISO 9001:2008 for Quality Management

Volta manufactures food grade conveyor belts at its production facility, which supports a sizeable R&D unit.
The company has distribution centers in Europe, the USA, India and the Far East to serve its global markets, locally.
Find out more about us by contacting the sales & service support center nearest to you.

Cleaning and Disinfecting Volta Belts.

All cleaning and disinfecting procedures must be re-examined periodically to confirm that the required hygiene level is maintained. Evaluation and inspection procedures should be carried out in order to verify that long term compliance with procedures is observed and specific local regulations and requirements are met.

As for any other plant operation, cleaning and disinfecting should be equally documented. If a HACCP concept is applied, these procedures should be treated as Critical Control Points (CCPs). If a Quality System like ISO is in operation, they should be integrated in the System.

It is vital that all cleaning procedures consider the following critical factors that could affect hygiene levels and influence the longevity of the belt itself.

- The amount of **time** the belt is exposed to the cleaning/disinfecting substance.
- The **concentration** of the cleaning/disinfecting chemicals.
- The ambient t**emperature**.
- The conveyor **construction**.

General Information:

- Safety is a primary concern; you should observe any local health and safety regulation and use common sense when dealing with any machinery. Particular care should be taken in the machine around the area of the pulleys or rollers which can easily trap body parts and cause serious injuries.

- Most large Detergents and Cleaning Solvent manufacturers have tested their solvent's effects on Volta belts and can therefore recommend the best solution for your application.

- When converting from Modular belt to Volta Positive Drive belts the cleaning procedure can be simplified and the use of highly concentrated harsh chemicals can be reduced. **You are advised to re-evaluate your procedure in order to save time, use less water and use less chemicals**. By re-evaluating the procedure you can also reduce costs and increase belt life.

- We do not recommend that you remove Volta belts for soaking. This procedure was developed in order to combat the low hygiene level of modular belts and is generally not necessary once Volta Positive Drive Belts have been fitted, in which case you are advised to re-evaluate your cleaning procedure. If you still feel the need to perform the soaking stage, Volta can offer you a lace solution which enables frequent belt removal. We suggest that you contact your nearest Volta representative to evaluate the effect this could have on the belt.

- One of the most important recommendations regarding the belt cleaning procedure is for you to make sure that the belt is left as dry as possible at the end of the process; any leftover "pools" of water will reduce the belt life.

Cleaning Procedure Tips

1) **Completely stop and disconnect any electrical flow to the conveyor.**

2) **Release the quick tension unit.**

3) **Removal of Bulky Product Residue.**
We advise you not to use any sharp tools or harsh metal brushes/Wire wool to remove stuck material; a flat low friction tool or soft cloth should be used to loosen remains if necessary.

4) **Pre- Rinse**
In order to remove any food residue remaining the belt surface should be thoroughly rinsed by using low pressure water at 130°F/54°C to 160°F/71°C. Water pressure used should be at 10 to 15psi. A thorough pre-rinse can reduce the amount of chemicals required in the cleaning process. You should avoid rinsing of belt surface closely with high pressure water jet.

5) **Foaming**
Selecting the detergent type most suitable will depend on the character of the product being conveyed. We recommend that you consult with your Detergent supplier for best cleaning results and minimal possible harm to the belt surface.

Commonly used Mild Alkaline Foam Cleaner, Acidic Foam Cleaner, or Chlorinated Alkaline Foam cleaner with concentration of 2-3% and applying time of around 15 minutes are safe to use on all Volta belts.

6) **Post-Rinse**
The post rinse process is to ensure that all pieces of remaining product wastage will be removed from the equipment. During this process it is also important to make sure that all chemical residues are thoroughly removed. A low pressure wash with warm water is best for this stage of the process. Water temperature should not exceed 130°F/54°C to 160°F/71°C. Any residual chemicals could cause damage to the conveyor belt and reduce its life span.

7) **Additional Sanitizing.**
It is highly important to make sure that your belt has been meticulously cleaned before beginning the sanitation process. Sanitation chemicals will not have any effect on a surface that is not completely clean.

As for the foaming stage, selecting the detergent type most suitable will depend on the character of the product being conveyed. We recommend that you consult with your Detergent supplier for best cleaning results and minimal possible damage to the belt surface.

Commonly used Neutral Foaming Disinfection, Per-Acetic Acid and Alkaline Disinfections with concentration of 1- 2% and applying time of around 15 minutes are safe to use on all Volta belts.
Various types of chemical disinfectants act differently on certain groups of bacteria and under certain pH-ranges. In order to achieve the maximum disinfecting effect, you are recommended to periodically alternate the type of the chemical disinfectant applied.
If using Chlorine at this stage it is not recommended to exceed 200ppm, Ozone can be used according to local health and safety regulation.

Check-list after cleaning procedure:

1. It is most important that all harsh chemical residues are rinsed off the surface of the belt.
2. Make sure that the belt is left dry as possible at the end of the process; any leftover "pools" of water will reduce the belt life. Run the conveyor or lift the belt to drain the excess water.

Check list before activating your production line:

1. Chemical residues have been rinsed of the belt.
2. Tension (if necessary) was restored to the correct measure.
3. Belt tracking is restored.
4. There are no obstructions along the conveyor construction that could prevent the belt from running smoothly.
5. Belt is not vacuumed pinned to the conveyor.

Conveyor Constructions Tips (must comply with local health and safety regulations):

1. All plant equipment should be designed to be adequately cleanable.
2. Open Side-Guards should be fitted - or removable sides for easy access to internal wash down.
3. Create a natural flow design - avoid any dirt traps and fluid accumulation points.
4. Include a quick tension unit - allows for easy tension release and belt lifting for internal wash down.
5. Open-Side conveyor - a possible solution for easy endless belt removing and refitting.

Material Safety Data Sheet

(compliance with OSHA)

Version 5 (page 1 of 3)
Date of review:
17/09/2007

1. **Chemical Product and Company Information:** Volta synthetic belts: **Family type** L, O, P, M, Z, G, H, K.
Volta Belting Technology Ltd.
Subcon Product Inc. S.P.C. Phone: 001-9737851700
100 Bomont Place Fax: 001-9737859899
Totowa N.J. 07512
Emergency Information: Phone: 001-9737851700

2. **Composition / Information on Ingredients:** Thermoplastic elastomers in a range of (shore-) hardnesses may include additives e.g., stabilizers, plasticizers.
Hazardous Ingredients: none

3. **Possible Risks:** Not Applicable.

4. **First Aid Procedures:** Melt burns should receive hospital treatment.

5. **Fire fighting Procedures:** All standard extinguishing agents, e.g. water spray, CO_2, foam or dry powder can be used.
In the case of fire or smouldering, fire-fighters should wear breathing apparatus. Contaminated extinguishing water should be disposed of, according to regulations.

5. **Measures in Case of Accidental Spillage:** Not Applicable.

7. **Storage and Handling:** **Storage Conditions**: Protect against moisture, sun light and heat source.
Work Conditions: Avoid breathing of melt fumes during welding operation.
Weld in well ventilated area.
Personal Hygiene: Wash thoroughly after welding.

Material Safety Data Sheet

Version4(page 2 of 3)
Date of review:
17/09/2007

8. **Exposure Controls and Personal Protective Equipment:**

Acute Effects of Exposure: Material is a non reactive solid.

Chronic Effects of Exposure: None known.

Limits of Exposure: During welding, certain belt families, where decomposition is suspected, MDI (Diphenylmethane Diisocyanate) could be liberated in small amounts.
OSHA PEL for MDI is 0.02 ppm
(which is ceiling value not to be exceeded).
ACGIH TLV for MDI is 0.005 ppm.

Personal Protective Equipment:

Eye Protection - Wear goggles when welding.

Skin Protection - As necessary to prevent contact under hot melt condition.

Respiratory Protection - Avoid breathing fumes. The weld area should be well ventilated.

9. **Physical and Chemical Properties:**

Shape:	Solid Conveyer Belt.
Colour:	According to Belt Family.
Odour:	None
Melt Temperature:	Above 120 °C
Specific Gravity:	~ 1.2
Flash Point:	>200 °C
Ignition Temperature:	>400 °C
Solubility in Water:	Insoluble

10. **Stability and Reactivity:**

Thermal Decomposition: at 230°C.
Hazardous decomposition can occur in case of fire, smouldering or overheating during welding: The released toxic gases have not been fully determined. They consist mainly of CO and CO_2, and may include one or more of the following: nitric oxides, amines, nitriles, hydrocarbons, isocyanates, hydrogen cyanide, aldehydes.

Hazardous Reactions: None.

11. **Toxicological Information:** When welding the belt, slight quantities of toxic fumes may evolve.
Generation of fumes increases, if the recommended processing temperature is exceeded.
Higher concentrations can cause breathing difficulty.
Sensitisation may occur. MDI could be liberated in small amounts, adequate ventilation should be used to maintain the limit values permitted under 0.005 ppm.

Material Safety Data Sheet

Version 4 (page 3 of 3)
Date of review:
17/09/2007

12. **Ecological Information:** In general not hazardous to water.

13. **Disposal Considerations:** Material may be incinerated or landfilled in compliance with federal and local environmental control regulation
Disposal Code No.: for unused product:
57110 (Germany).

14. **Transport Information:** Classified as non dangerous goods, in accordance with transport regulations.

15. **Regulatory Information:** **OSHA STATUS** - This product is not hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200). However, fumes from thermal processing may be hazardous as noted in section 8.
SARA TITEL III -
Section 302
EXTREMELY HAZARDOUS SUBSTANCES - None
Section 311/312
HAZARD CATEGORIES - Non hazardous under section 311/312.
Section 313
TOXIC CHEMICALS - None.
EU Directive - No identification according to the 4th amendment of the regulation concerning dangerous substances (October 26, 1993).
Technical Regulations for Dangerous Products 900:
Limit value for MDI in air: 0,005 ppm (0,05 mg/m^3).
Technical Regulations for Dangerous Products 500:
Appendix 3 as classifies gaseous MDI TLV- list category IIIB.
Provided the recommended processing conditions are observed, the limits will not be exceeded.

16. **Other Information:** **User Responsibility**: The information submitted in this bulletin is based on our current knowledge and belief. However, it cannot cover all possible individual situations. All chemicals may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. As the user has the responsibility to provide a safe work area, all aspects of an individual operation should be examined to determine if or where, precautions, in addition to those described herein, are required. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed.

UNITED STATES DEPARTMENT OF AGRICULTURE
MARKETING AND REGULATORY PROGRAMS
AGRICULTURAL MARKETING SERVICE

EQUIPMENT ACCEPTANCE CERTIFICATE

Firm:

Volta Belting Technology Ltd.
Karmiel Industrial Park, P.O. Box 6346
Karmiel, 21651, Israel

Model Designation:

Conveyor Belting
MB, MW, W, HB, and HW

January 8, 2009
Date of Issuance

January 7, 2014
Date of Expiration

U.S. Department of Agriculture
Marketing and Regulatory Programs
Agricultural Marketing Service
Dairy Grading Branch
1400 Independence Ave., SW
Washington, DC 20250-0230

The issuance of this form is based on U.S. Department of Agriculture, Dairy Grading Branch, Equipment Design Review Section, evaluation of the equipment listed above for compliance with:

USDA Dairy Equipment Review Guidelines

This form does not limit USDA's responsibility to take appropriate action in cases in which evidence of non-compliance, improper maintenance, or non-sanitary conditions have been observed.

USDA United States Department of Agriculture

DA-161 (09-04) Destroy previous editions.