AQUATEX-EX®

Product Presentation
Water storage system

Genap B.V. P.O. Box 27 7040 AA 's-Heerenberg NL Goorsestraat 1 7041 GA 's-Heerenberg NL Phone +31 (0)314 66 16 44 Fax +31 (0)314 66 21 37 E-mail: genap@genap.nl www.genap.nl

1. General Information

Aquatex EX® is a polyolefin-based homogeneous foil. This material is particularly suitable for applications in which high demands are made for resistance to temperature and UV-light combined with a high chemical resistance.
This material is also available with reinforcement (fabrics).

2. Market Areas

Aquatex EX® is suitable for use in the following market areas:

- Agriculture and horticulture market
- The industrial market
- Infrastructural projects
- Building and construction
- The environmental sector
- Floating covers

3. Product Description

With its specific properties, Aquatex EX® can be used for a wide range of products, such as:

- Basin linings and tank linings for water storage in market gardens.
- Basin linings (top covers and bottom linings) and tank linings for manure storage.
- Liners for emergency basins/fire extinguishing basins and industrial waste water.
- Floating covers on basins (reinforced Aquatex® EX).
- Linings for industrial water and sludge (refer to list of resistance to chemicals)

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4. Added value Arguments

Aquatex EX® has a range of unique properties allowing applications under specific conditions.

- Temperature resistant from -40°C to 80°C and high-impact resistance at low temperatures.
- Low specific weight (0.9 Kg/m²).
- Tear strength (l/t): 140 N/mm; Tensile strength >17 N/mm²
- Elongation at break (l/t): > 800%.
- Very high resistance to UV-light.
- High piercing resistance.
- Good chemical resistance (appendix 1).
- Easily thermally welded; not te be glued.
- No plasticizers.
- Life time expectation: up to 15 years

5. Advantages

- Less chance of frost damage
- Less chance of damaging liner-wall in certain weather conditions (wind, low temperatures)
- Easy to work with at lower temperatures
- Longer guarantee term
- Lighter material: easier to set up
- Good price for long durability
- High chemical resistance

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AQUATEX® PVC; AQUATEX® PLUS; DRAINTEX® AND AQUATEX EX® TANK LINER

Aquatex® tank liners for storage silos, height up to 4.64 metres, diameters varying from 1.85 to 30.95 metres.

Materials required:
N.B. Check the packing list on receipt of the materials before commencing assembly.

Tank liner:
Aquatex® PVC 0.5 mm or 1.0 mm Aquatex® Plus 0,5 mm for rain- drinkwater or clean water storage.
Draintex® 0.5 mm and Aquatex EX® 0.5 mm or 1.0 mm for drain- or recirculationwater storage

Protective blanket:
Polyester non-woven 300 gram/m^2 blanket as protective blanket between the tank wall and the liner.
Extra Polyester non-woven 500 gram/m^2 blanket for the bottom when placing on a concrete floor and/or surface with poor load-bearing characteristics/rough surface.

Tank liner and protective blanket are generally supplied with:

- profile clamps
- ratchet buckle (complete with nuts and bolts)

Transportation:

- The material is supplied as discussed and agreed in a box on a pallet and in shrink-wrapping foil.

Assembly conditions:
The tank liner can be assembled at:

- maximum wind force 5, to be judged by the responsible assembler on site.
- temperature minimum + 5 ^{0}C.

Surface checking:

- The bottom must be clear of sharp points, rubbish, roots and other sort of growth or materials which could damage the foil.
- The surface must be dry, walkable and have sufficient load-bearing characteristics to bear the weight of the tank and contents.
- The bottom must be rounded with the highest point in the middle.
- The tiles must be completely embedded in the sand and the sand must be firm. The water pressure must not cause the sand to settle since then the sharp edges of the tiles will be exposed.
- Pipes should extend out of the ground ca. 0.3 metres.
- Determine the centre of the circle and check the circumference.

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Assembly:

First of all place the tank liner in the middle of the silo and remove the packaging materials.
Consult the assembly drawings supplied with these instructions when reading the following assembly instructions for fitting the tank liner in a storage silo.

1. Place the protective blanket over the wall so that there is an overlap of 0.1 metres and fix this with the profile clamp. Lay any excess out on the bottom.
   The profile clamp must be fixed every 0.3 metres using a tie-wrap through the top row of bolt holes in the tank wall, making sure that the clamp part of the tie-wrap is placed on the inside of the tank.
   If a bottom protective blanket is being used this must be placed in position before fitting the wall protective blanket. Lay the polyester non-woven blanket as flat as possible, without folds and place any excess up the walls.

2. Fold out the liner starting from the middle.
   Pull the liner over the edge at one point - start by preference at the vertical weld in the tank liner wall- and then, starting from this point and using at least two people, one on each side, pull the liner over the edge.
   Fit temporary clamps on the edge to stop the liner falling back.
   As soon as all the liner is over the edge fit the ratchet buckles and lead the loose end of the belts through the ratchet buckles and pull them tight.
   Check whether the liner on the outside of the silo lies as far as the third corrugation.
   Pull the ratchet buckles completely tight with a few turns. If necessary push the ends of the belts through the ratchets again to work away any excess length.
   Pull out the liner inside the silo completely and lay it in the correct place.
   N.B. Folds must hang vertically.

3. Pipes that come out of the bottom or through the walls can be dealt with using a conical outlet; see our installation instruction "Conical outlets".

4. Check the whole tank liner for correct positioning and damage; remember also to check the point where the ladder was standing.

N.B.: fill the silo with water as soon as possible after assembling the complete silo and fitting the pipe feed-throughs in order to allow the whole assembly to settle. Check the liner while filling the silo. At the same time as the tank is filled add extra sand to the outside if necessary.

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Maintenance guidelines:

- in order to enjoy a good functioning water storage system for many years you must follow these instructions and prevent mechanical damage.
- where tanks are situated outside regular checking of the silo after a storm (high winds) is recommended. Look for any damage to the silo wall and the silo liner during these checks. Any damage noticed must be repaired directly or assistance in repair requested.
- maintain a minimum water level in the silo of at least 0.3 metres.

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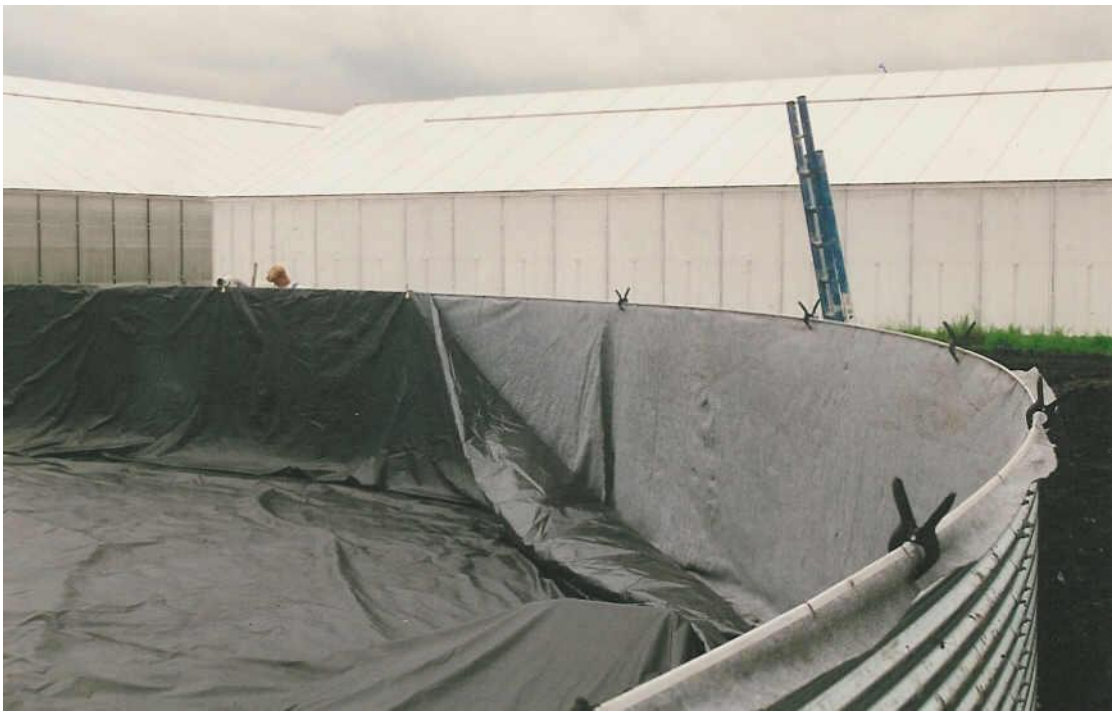

Image 1: attach tank liner and protection sheet to the tank with plastic clamps

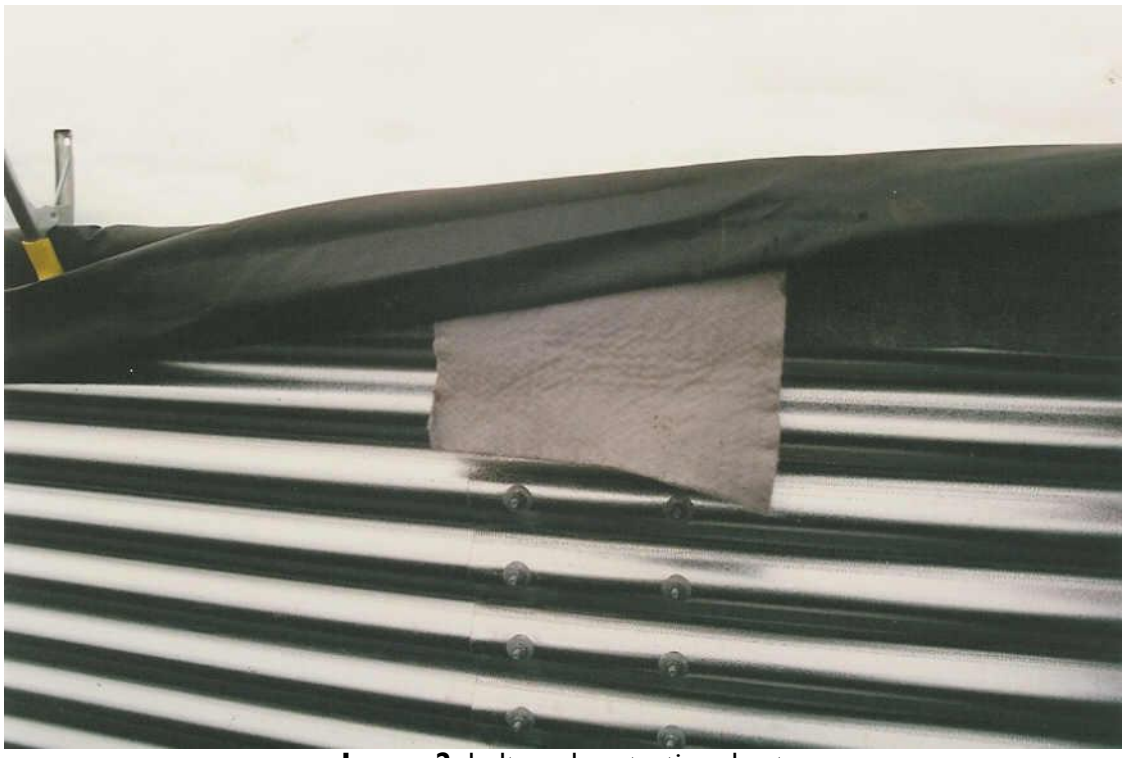

Image 2: bolts and protection sheet

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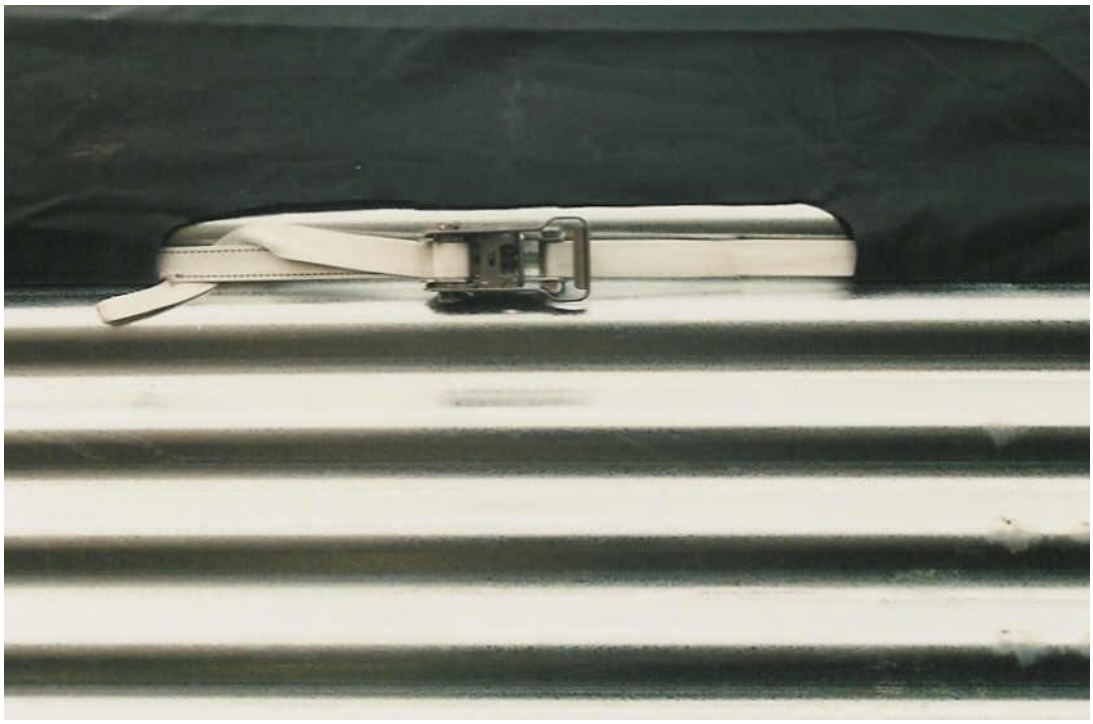

Image 3: pull the ratchet buckles tight

Image 4: end result Aquatex® EX tankliner Ø 27,31 metres

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Chemical resistance PVC-P and Aquatex EX®

According to ISO 175
Effects of other chemicals on these liners on request.
Exposed 28 days, 23°C, 7 days conditioning.

In the table mentioned below the different materials are criticized as follows:
A. None or little effect (good resistance)
B. Moderate effect (moderate resistance; i.g. swelling of the material or stress corrosion cracking)
C. Serious effect (no resistance)

	PVC-P	Aquatex-EX®		PVC-P	Aquatex-EX®
Acetone	C	A	Oil, mineral (pure)	C	B
Acetic acid 25%	C	A	Oil, vegetable (pure)	B	B
Ammonia 25 %	B	A	Oil, animal (pure)	C	B
Ammoniasulphate	A	A	Oil, Diesel	C	B
Antarox 10 %	B	A			
			Oxalic acid 25 %	A	A
Butyl acetate	C	A	Sodium-chloride 25%	A	A
Butanol	C	A			
Calcium chloride 25 %	A	A	Chlorine (NaClO):		
Citric Acid 25 %	A	A	Sodium-hypochloride <0.5ppm	A	B/C (>0.5ppm)
Creosot	C	B	(50°C)		
Cyclohexane (pure)	C	B	Bleach (CaClO):		
Di-ethyl-ether (pure)	C	B	Calcium-hypochlorite <0.5ppm	A	B/C (>0.5ppm)
Ethanol (concentrated)	C	A	(50°C)		
Ethyl acetate	C	A			
Ethylene glycol	C	A	Sodium-hydroxide 25%	C	B
Ferric chloride 25 %	C	A	Sodium-hydroxide 60%		
Formic acid	C	A	Sodium-nitrate 25%	A	A
Glycerine	B	A	Sugar 25 %	A	A
Hexane (pure)	C	B	Sulphuric acid 25 %	B	A
Hydrochloric acid 25 %	C	A	Sulphuric acid 65 %	B	B
Hydrogen peroxide	A	A			
Isopropylalcohol	C	A	Tetra-Hydro-Furane (THF)	C	A
Kerozene/Gazolene	C	B	Toluene (475ppm)	C	A
Petrol Euro 95	C	B	Tri-Chloro-ethylene (475ppm)	C	A
Potassium-chloride 25 %	A	A	Tri-Chloro-ethylene (pure)	C	B
Potassium-hydroxide 25 %	C	A	Tetra-Chloro-ethylene (pure)	C	B
Phosphoric acid	C	A			
MEEK (1000ppm)	C	A	Turpentine (pure)	C	A
MEEK (pure)	C	B			
Methanole	C	A	Xylene 150 ppm	C	A
Nitric acid 25 %	C	A	Xylene (pure)	C	C

The permeability of the different types can be tested upon request.

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STATEMENT OF COMPLIANCE

Quality: Aquatex EX®

Colour: black

GENAP BV states that the raw materials of the above mentioned quality comply with the legislations, recommendations or communications as mentioned below.
Therefore this quality is applicable in end use products for the storage and transport of drinkwater and food as well as for horticulture applications.

Country	*legislations, recommendations or communications*
The Netherlands	*"Verpakkingen en gebruiksartikelenbesluit (Warenwet: "Regeling" of 21/08/1991 Stcrt 167 of 29/8/1991 and following supplements.*
Germany	*"BgvV" Recommendation VII upd. 1/8/1985, "BGB" Teil 1 of 10/4/1992 and following updates.*
Belgium	*"Arreté Royal du 25 Aout 1976" (amended by Arreté Royal 24/07/1992) and Amendments.*
France	*"Materiaux au contact des aliments et de denrees destinees a l'alimentation humaine" Brochure nr. 1227 edition Janvier 1994 (and updates). Arreté du 14 Septembre 1992 (as modified).*
United Kingdom	*"Statutory Instruments, 1992 nr. 3145" and following updates.*
Spain	*"Resoluction de 4/11/1982 amended by Real Decreto 2207/1994 - 16/11/1994.*
Denmark	*Sundhetsministeriets bekendtgoreise nr. 758-20/11/1991 as amended.*
Italy	*"Decreto ministeriale del 21/3/1973"amended on 26/4/1993 : D.M. nr. 220 and following updates.*
Ireland	*Statutory Instruments nr. 307 of 1991.*
USA	*"FDA" : § 177.2600 (rubber articles for repeated use); (a) through (c) or § 177.1520 (a) (3) (iii) and (c) (3.4) when blended with PP homopolymers-copolymers or with PE.*
Austria	*"K.V." nr. 775, 23/09/1994 as amended.*
Finland	*"KTM", Paatos 397/94 and following updates.*
Greece	*New code for Foodstuff and beverages 1984, Chapter II, Art. 26, AX 636/91, EK 775/91, 676/93.*
Luxembourg	*"Règlement Grand-Ducal" - 11/6/1991.*
Norway	*"Kongelig resolusjon of 11 March 1976 and updaed 21/12/1993".*
Portugal	*"Portaria" 1114/95 - 13/9/1995.*
Sweden	*"Food regulation : SLV FS; 1993: 18", 16/12/1993 as amended.*

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Aquatex EX®

TOEPASSINGEN / ANWENDUNGEN / APPLICATIONS

- Liners / Auskleidungen / Reservoir liners
- Drijfzeilen / Treibende Abdeckungen / Floating covers

TECHNISCHE GEGEVENS Technische Daten; Technical data	WAARDE Wert; Value	EENHEID Einheit; Dimension	TESTMETHODE Testverfahren; Testmethod-
Uiterlijk bovenzijde/onderzijde Oberfläche Oberseite/Unterseite Surface top/bottom	Mat/mat - Matt/matt Dull/dull	-	
Weefsel - - - Gewebe; Fabric			
Coating Coating; Coating	EX®	-	-
Dikte Stärke; Thickness	± 0.5	mm	DIN EN 2286
Treksterkte K/I Reißfestigkeit K/S; Tensile strength W/W	≥ 17	N/mm²	NEN ISO 527
Rek bij breuk K/I Bruckdehnung K/S; Elongation at break W/W	> 800	%	NEN ISO 527
Doorscheurweerstand K/I Weiterreißfestigkeit K/S; Tearstrength W/W	> 40	N/mm	DIN 53515
Temperatuurbestendigheid Temperaturbeständigkeit; Temperature resistance	- 40 +80	°C °C	DIN EN 495-5 DIN 16726 §5.13
Chemische bestendigheid Chemische Beständigkeit; Chemical resistance	Goed Gut Good	-	ISO 175
UV-bestendigheid UV-beständigkeit; UV-resistance	Goed Gut Good	-	DIN 53387

Bovengenoemde eigenschappen zijn richtwaarden.Voor eventuele onjuistheden kunnen wij echter geen aanprakelijkheid aanvaarden. Obengenannte Eigenschaften sind Richtwerte. Eine Verbindlichkeit kann daraus nicht hergeleitet werden. The above mentioned properties are indicative values. We can accept no liability for possible incorrectness.

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