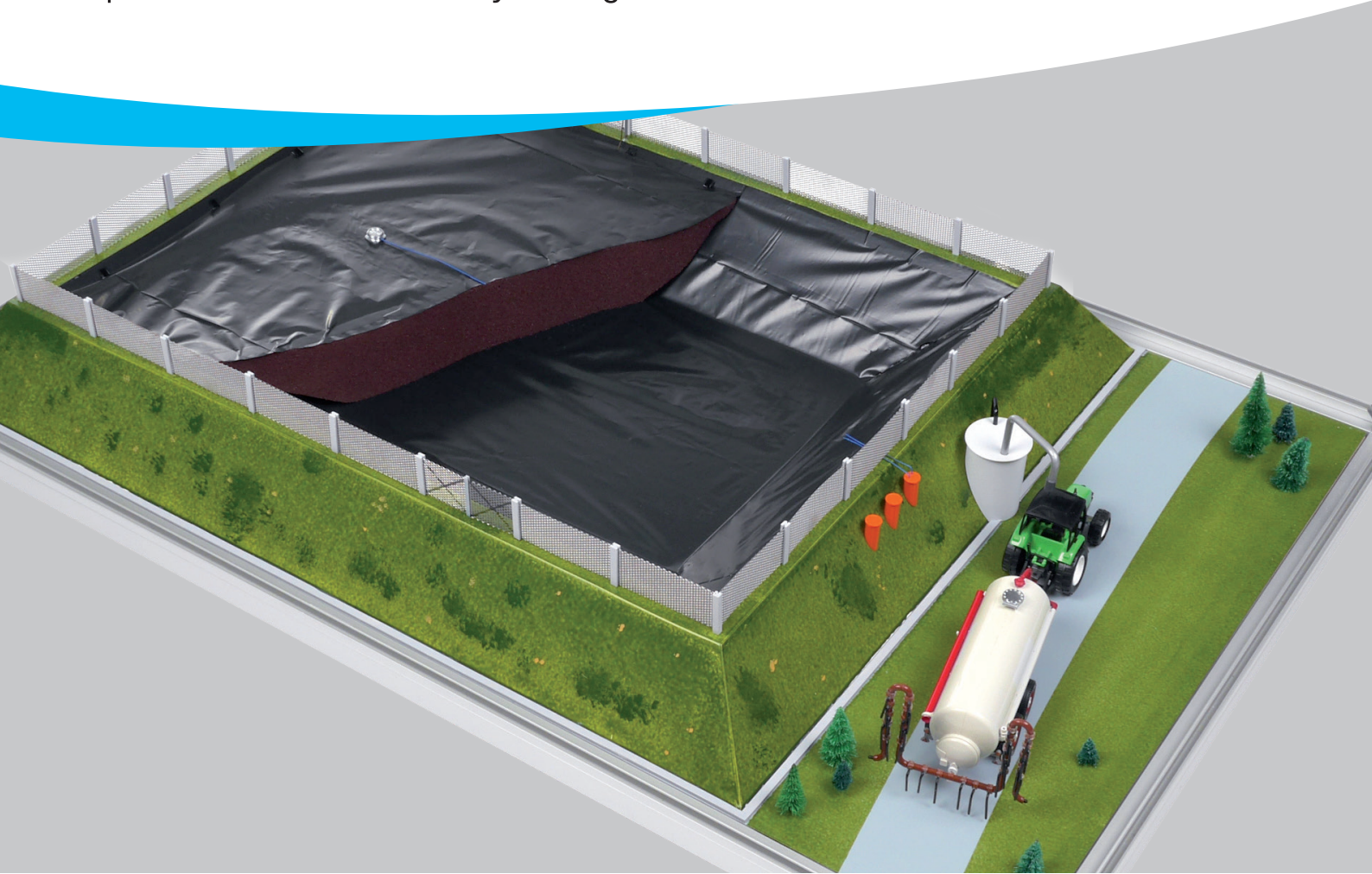
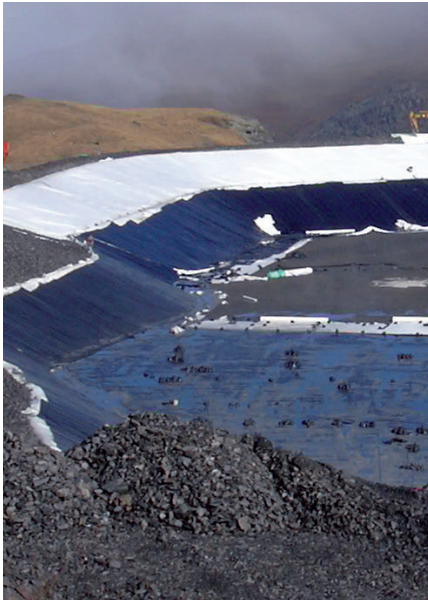


We cover almost everything

Building a covered slurry lagoon

Improved solution for slurry storage





Individual solutions to your advantage

Millag has been installing covered slurry lagoons in European countries and China since 1997, giving our team of personnel extensive experience in planning and constructing customer-specific products.

There is a lot of focus in many countries at this time on finding eco-friendly solutions, which is why BG Millag finds it only natural to deliver customised lagoons that also protect the environment.

We work closely with our customers to find the solution that meets their needs whilst meeting all requirements laid down by local authorities.

All parts for our lagoons are delivered from Denmark

Lagoon membranes are produced in our hot air welding facility. They are then shipped to the construction sites where our technicians perform final installation.



Installation

Our technicians have all the necessary hot air welding equipment, but can require help to handle large membrane elements.



Technic

Our technicians are fully qualified, and will continuously test welds with sophisticated equipment, to ensure that the quality is up to our own high demands.



**Specify Millag
as your contractor
to ensure all your
requirements are
fulfilled**



Complete solutions from livestock housing to lagoon

Regardless of whether the need for storage is from pig or cattle herds, a Millag covered slurry lagoon will be the optimum means of storing slurry.

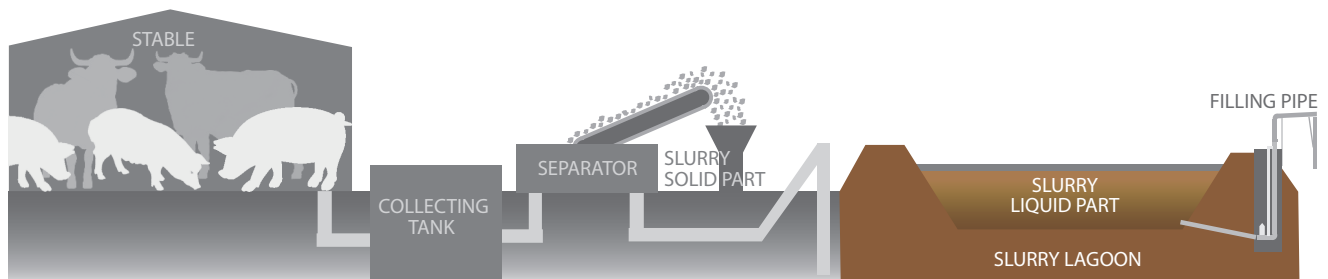
We recommend separating the slurry before it is pumped into the lagoon, and can supply complete systems with separator, mixers, pumps and pipes from the collection tank to the lagoon.

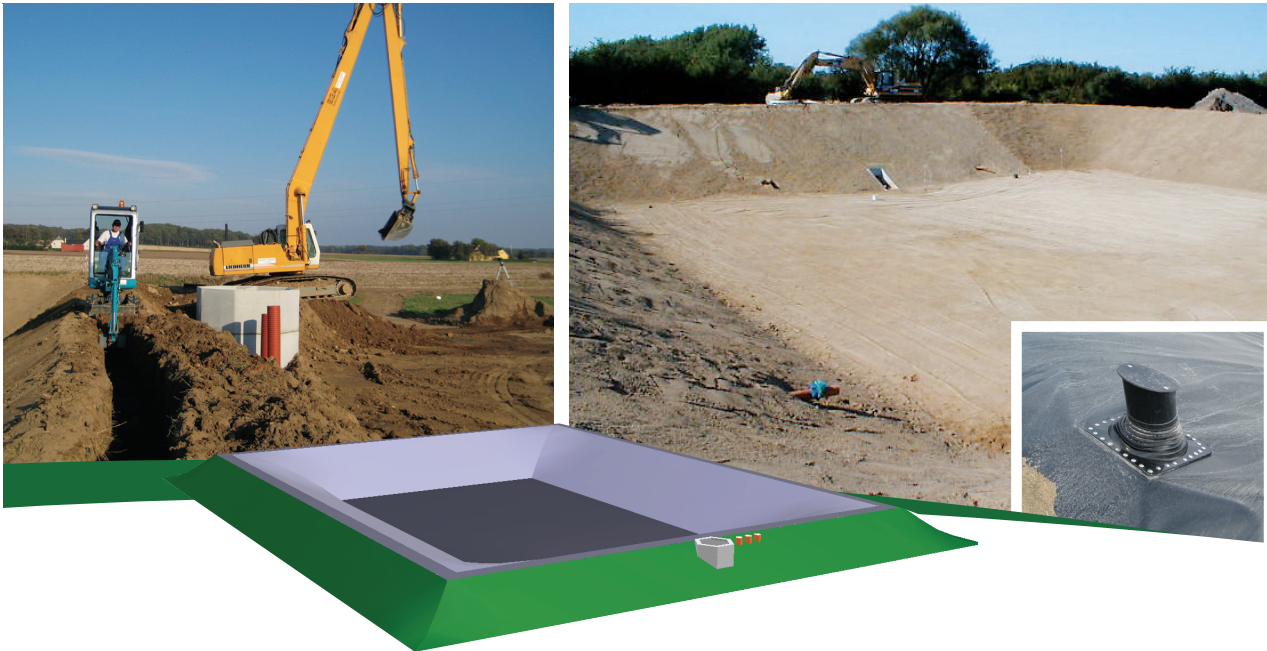
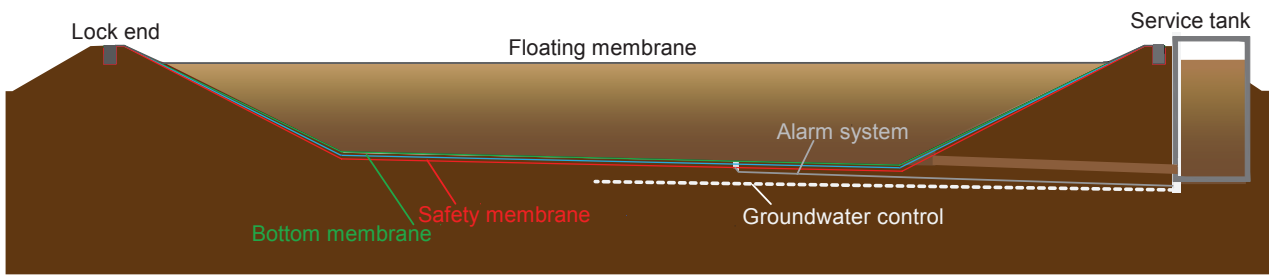
We normally provide equipment from renowned Danish manufacturers with extensive experience, but can also customise our own solutions to products from local suppliers if required.

Danish Agricultural Construction Specification sheet no. 103.04-30 lays down the following slurry lagoons in Denmark:

Soil and hydrological surveys of the site of the lagoon must be performed. The membranes must be approved in accordance with Danish Standard (DS/INF 466) and service engineers welding them must be certified in accordance with DS/INF 466.

Denmark has some of the most restrictive environmental rules in the world.





Building a Millag covered slurry lagoon

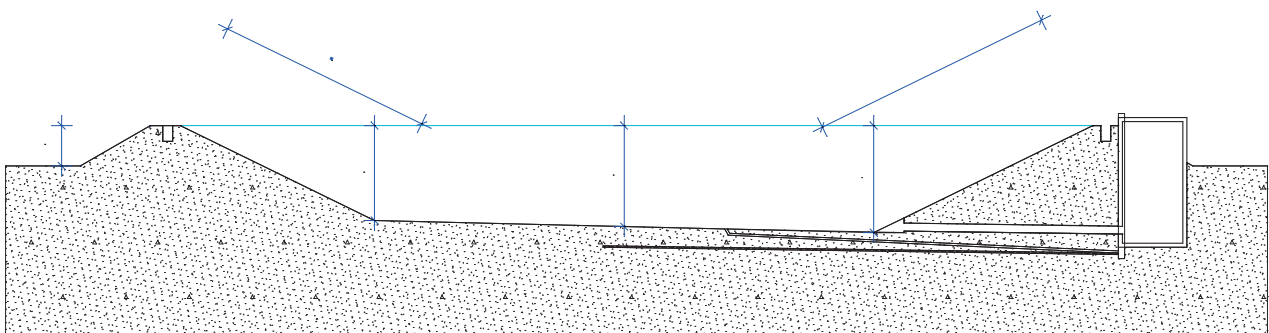
A covered slurry lagoon built according to Danish Agricultural Construction Specification no. 103.04-30 consists of a safety membrane, alarm system, bottom membrane and covering membrane. A number of vents in the latter allow gas out.

Millag supplies covered lagoons with capacity right up to 20,000 m³ – 25,000 m³ depending on depth (if for separated slurry). If the slurry is not separated, we normally recommend maximum content of 7,000 m³. A lagoon can be designed to fit into the area available, including odd angles. Depth varies from 3 - 6 metres, normally with 50% below ground level. A 40 m³ service tank connected to the lagoon ensures rapid, easy filling and emptying without the risk of damaging the membranes.

A covered slurry lagoon is good for the environment:

- No evaporation of ammonia to the atmosphere
- Minimal costs for slurry transport when emptying the lagoon – e.g. for spreading as fertiliser, as no rainwater is mixed with the slurry
- Significant reduction of smell from the slurry – a big advantage for the neighbours
- Increases fertiliser value as no ammonia (nitrogen) evaporates from the slurry

The bottom of a Millag lagoon features a specially shaped drain that runs to a concrete sump connected to the service tank.






Installation and quality control

Millag is quality-certified in accordance with ISO 9001 and all lagoon parts are prepared at our workshops in Denmark under careful quality control before being sent to the building site.

Our own certified technicians take care of assembly and installation, regardless of where in the world the site is located, bringing with them the necessary welding and quality testing equipment.





DNV BUSINESS ASSURANCE
MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 168071-2014-AQ-DEN-DANAK

This is to certify that

Byggros A/S

Egeglådsvej 5, DK-5260 Odense S, Denmark

has been found to conform to the management system standard:

DS/EN ISO 9001:2008

This certificate is valid for the following product or service ranges:


Product development, production and marketing of a wide assortment of rel for the industry and building and construction business


Locations included in the certification will appear in the appendix.

Place and date:
Hellerup, 2014-11-12

This certificate is valid until:
2017-11-12

The audit has been performed under the supervision of:
Steen Djarsgård
Lead Auditor


Anders Lindgren
Managing Director



DNV BUSINESS ASSURANCE
APPENDIX TO CERTIFICATE

This appendix refers to certificate no. 168071-2014-AQ-DEN-DANAK


Byggros A/S

Locations included in the certification are as follows:

Site Name	Address
Byggros A/S (HQ)	Egeglådsvej 5, DK-5260 Odense S
BG Byggros AB	Levins Væg 4, S-29173
Byggros AS	Solk. N-0203 Oslo
BG Biovarme ApS	Egeglådsvej 5, DK-5250 Odense S
BG Barcherth A/S	Egeglådsvej 5, DK-5250 Odense S
Byggros Måteknik/Inja Måteknik	Egeglådsvej 5, DK-5250 Odense S
Milbg ApS	Egeglådsvej 5, DK-5250 Odense S

This certificate is valid until:
2017-11-12

The audit has been performed under the supervision of:
Steen Djarsgård
Lead Auditor


Anders Lindgren
Managing Director

Millag ApS

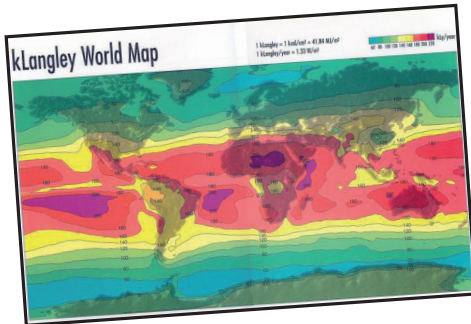
Characteristics required for use in the construction of:
liquid waste disposal sites, transfer stations or secondary containment according to EN 13492
solid waste storage and disposal sites according to EN 13493

Characteristic	Test Method	Unit	JUNIFOL PELLD SL	
			1,0	1,5
Material	DSC analysis		PE-LD	
Surface			GFD (smooth / smooth)	
Width	EN 1848-2	m	5,1 or 6,0	
PHYSICAL PROPERTIES				
Thickness	EN 1249-2	mm	2,0 or 3,0	1,5 or 2,0
Density	EN ISO 1183	g/cm ³	≤ 0,959	
Dimensional stability	EN 1107-2	%	≤ 2	
HYDRAULIC PROPERTIES				

Weathering factors (UV radiation in particular):
durable and resistant for at least 30 years
total amount of sun radiation up to 120 KLy;
please, contact the producer

THERMAL PROPERTIES				
Flexibility at low temperature	EN 495-5	°C	-30	
DURABILITY AND CHEMICAL RESISTANCE				
Resistance to weathering	EN 12224		if exposed to direct impacts of weathering factors (UV radiation in particular): we predict the product to be durable and resistant for at least 30 years (valid for regions with an annual amount of sun radiation up to 120 KLy; for other regions, please, contact the producer)	
Resistance to oxidation	EN 14575		reduction of tensile strength and elongation: ≤ 25 % of original value	
OTHER PROPERTIES				
Carbon black content	EN ISO 11358	%	2 - 3	

None measured data are average values and of informative character only. The manufacturer reserves the right to alter the specifications without prior notice. It is the responsibility of all users to satisfy themselves that the above specifications are correct. The product as per this material data sheet has been designed in conjunction with BG Millag ApS, Egegårdsvvej 5, DK-5260, Odense 5, Denmark.





DANISH TECHNOLOGICAL INSTITUTE
Gregersensvej
DK-2630 Taastrup
Tel. +45 72 20 20 00
Fax +45 72 20 20 19
info@teknologisk.dk
www.teknologisk.dk

BG Millag ApS
Egegårdsvvej 5
DK-5260 Odense 5

Approval of products according to DS/INF 466

Approval of products according to DS/INF 466 - JUNIFOL PELLD SL

Assessment and examination of the below products for the purpose of approval according to DS/INF 466, 1st edition 1999-08-16, Sanitary landfill liners.
Welded samples and liner samples have been received here on 26 February 2015.
According to the client, the liner type JUNIFOL PELLD SL has been manufactured in co-operation with JUTA and Millag ApS.

The following two products have been approved:

Our membranes are suitable for use in any climate zone and must be able to tolerate contact with slurry

The covering membrane also has to remain supple regardless of temperature and other climatic conditions. All Millag membranes are approved by the Danish Technological Institute according to the strict Danish requirements in DS/INF 466 – and also fulfil the requirements of the Danish Agricultural Construction Specification for slurry lagoons.

Thanks to extensive experience within membrane production, Millag has helped develop one of the membrane types we use for covering our slurry lagoons. Using this membrane, we can supply lagoons with a projected service life of minimum 30 years at up to 120 KLy.

Specially developed propeller mixer

If the slurry is not separated, it is very important to mix it before spreading. For this purpose, we offer a specially developed transportable propeller mixer for slurry lagoons, fitted with plates to avoid the risk of damaging the bottom and covering membrane during agitation. A tractor with minimum 100 brake horsepower is required to power the mixer. The mixer can be adjusted to any height using its integrated hydraulic system and the high performance propeller ensures correct slurry agitation.

Slurry is a valuable resource



Slurry consists mainly of digested and undigested feed, bedding material and water. It therefore contains the same nutrients as the plants the animal eats or was bedded on 100% organic materials. Such nutrients are regarded as a valuable resource for fertilising crops in Denmark, where farmers have realised that they can wholly or partially substitute the nutrients in mineral fertilisers bought in bags. The farmer therefore needs to buy less mineral fertiliser and saves money.

Guidelines for slurry use

Storage

To be able to apply slurry at the times of the year when crops need the nutrients, it is important to be able to store it for a certain period of time. About 9 months is the norm in Denmark, using storage tanks made from concrete or steel or in lagoons with a plastic membrane.

Application time

Slurry must be applied just before the crops need the nutrients. Most slurry is applied in spring just before sowing barley or maize, or just before grass or wheat is starting to grow. If slurry is applied in autumn or winter when crops are not actively growing, there is a risk of nutrient loss due to leaching.

Applied amount

The amount of slurry applied must be adjusted according to the requirements of the crop. Most crops do not require more than 30-50 tonnes of slurry per hectare. A larger amount can have a negative impact on the crop due to an excessively high concentration of salt near the roots, which is toxic to the crop.

Application methods

When providing most nutrients via slurry, it is important to make sure that the slurry is spread evenly to avoid some parts of the field getting too little and others too much. Tankers equipped with hoses or injectors with an individual distance of about 30 cm are used to obtain an even spread.

About us

Millag delivers and installs plastic membranes all over the world.



Millag specialises in consultation on and installation of membrane solutions at home, and abroad.

Countries in which we have installed membrane solutions include Russia, China, Ukraine, Romania, Greenland and Sweden to name but a few. Many of our employees have been in the business since 1997, which means that they have gained vast experience in designing and constructing membrane solutions - also in extreme conditions.

In addition, we always keep membranes in stock for immediate delivery.

Plastic membranes

We cover almost everything

We sell plastic membranes with many different properties, enabling us to deliver membrane solutions for a variety of situations. We focus on quality, which is why most membranes have been tested and approved by the Danish Technological Institute to, ensures that they fulfil the requirements of standard DS/INF 466.

We deliver and install membranes for many different purposes, including:

- Sanitary landfills
- Slurry lagoons
- Water basins
- Sealing of French drains
- Radon insulation
- Green roof waterproofing
- Etc.

We offer professional consultation with regards to our products and are happy to provide a quote for any project.