



# WASTE MANAGEMENT



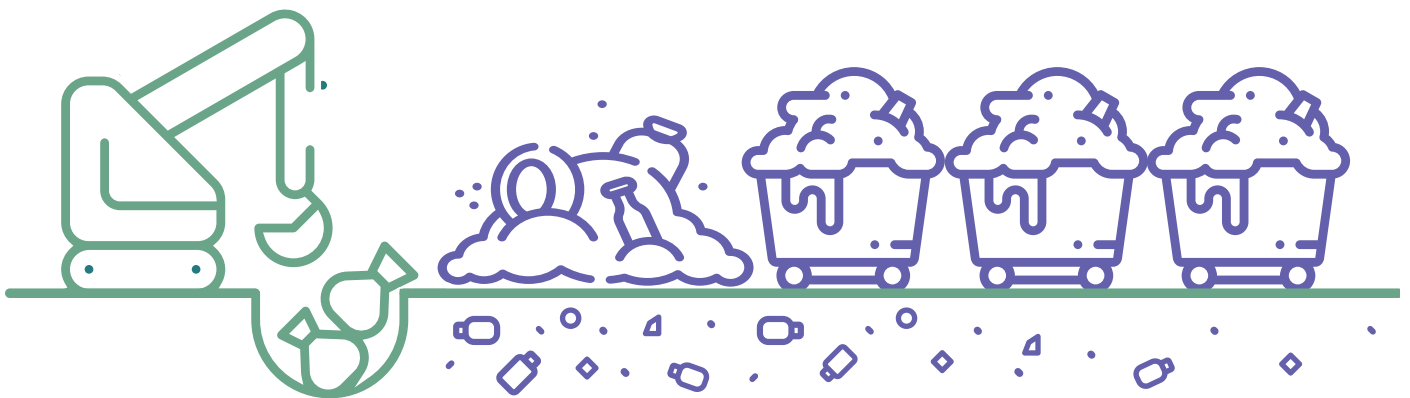
# PROTECTING THE ENVIRONMENT FROM WASTE

Waste is an ever evolving by-product of human and industrialization activity. A growing world population and economy, new technologies, new forms of waste, increasing volumes and regulatory pressure have created challenges and opportunities for effective waste management.

THE WORLD BANK  
CONSERVATIVELY  
ESTIMATES CURRENT  
GLOBAL WASTE  
GENERATION AT  
**1.3 BILLION TONS  
PER YEAR OF  
MUNICIPAL SOLID  
WASTE ALONE**

THIS IS EXPECTED  
TO INCREASE TO  
APPROXIMATELY

**2.2 BILLION  
TONS BY  
2025**



The regulated use of [geomembranes](#) for waste containment is increasingly becoming mandatory in both developed and developing countries.

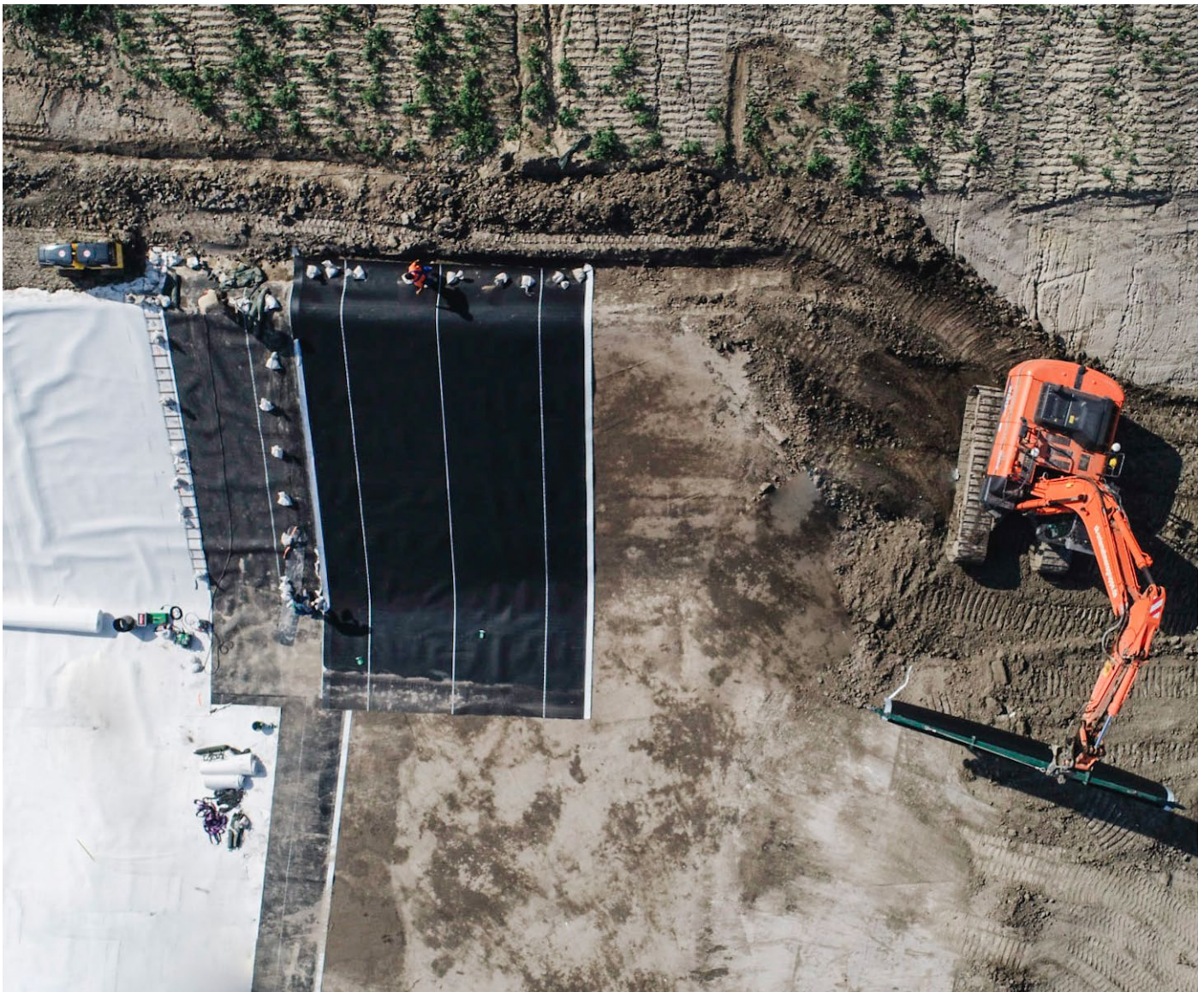
[Waste management](#) aims to conserve natural resources and manage waste in an environmentally sound manner. Effective management of waste includes prevention, recovery, re-use, recycling and disposal. More importantly this requires a strategic approach to the design and build of disposal facilities.

To do so, you need a partner with the right products and solutions that you can rely on and an expert you can trust. [Solmax](#)'s geosynthetic products and cover solutions are used in more regions around the world for well over 40 years.

Our experience and reach give us a clear competitive advantage, allowing you to have peace of mind that your [waste management](#) efforts are not only compliant with new waste disposal laws and government regulations but also contributes to building a sustainable future.

Solmax products are

- approved for use in various
- classes of landfills and
- landfill applications by
- national authorities around the world (e.g., BAM, Asqual).



# LANDFILL CELL

## MUNICIPAL WASTE

Modern landfills are highly engineered, the safest and most economical solution for managing [municipal waste](#). Specifically designed to prevent contamination of the environment, they are usually constructed out of numerous dimensional layers of geosynthetics and soil layers, each performing a specific function within the containment area.

The main requirement for a municipal solid waste landfill is that it does not pollute, contaminate or degrade its environment.

Our [high-density polyethylene \(HDPE\)](#) geomembranes are engineered to withstand deterioration with proven durability for long term use in both buried and UV exposed conditions, preventing leakage into groundwater, and providing stability on steep slopes.

Our [geosynthetic clay liners \(GCLs\)](#) are installed below the geomembrane to form a composite barrier system with superior hydraulic barrier performance.

## HAZARDOUS WASTE

Corrosive, flammable, reactive and poisonous materials have to be contained in specialized facilities to prevent them from damaging the environment. As such, most industrialized countries have developed regulations to dispose of these materials in a secured landfill cell that is designed with double-lining system, which is now the standard in most countries.

Our engineered and high-performance [geomembrane](#) and [GCL solutions](#), combined with effective [drainage](#) geocomposites, provide a pivotal function for an effective double-lining system design. This creates an impermeable barrier lining system at the base of the facility to prevent [hazardous waste](#) and high concentrated leachate from getting into the environment.

## INDUSTRIAL WASTE

Industrial activities produce a significant amount of waste and while efforts are increasing to reuse and recycle material a large quantity still requires properly managed waste disposal. Our broad range of [geomembranes](#) and [GCLs](#) will support you in developing cost-effective long-term containment solutions.

Waste from factories, construction sites, manufacturing plants and other industries require specialized [waste containment solutions](#).

The use of geosynthetic products help to keep your waste disposal facility compliant with health, safety and legal requirements







# LANDFILL CAPPING

Major long-term concerns when capping [landfills](#) include the differential settlement due to biodegradability of the waste, slope stability and surface erosion of the soil layer. The cap and its foundation needs careful design and choice of barrier systems.

In a landfill cap a geosynthetic liner system represents a small fraction of the overall cost but virtually 100% of the protection.

Our geosynthetic solutions have been proven to perform a multitude of functions concurrently. From accommodating differential settlement, gas venting and gas collection, to keeping moisture from entering the [waste containment](#).

## LEACHATE CONTAINMENT

Leachate is generated when excess water passes through waste, dissolving soluble substances. Landfill leachate collection is necessary to reduce leachate buildup in the cell. Containment and treatment of this leachate is therefore a key component of [waste management](#) to prevent contamination of the environment.

Geosynthetics can be utilized to create safe and cost effective barrier solutions. [GCLs](#) act as secondary or tertiary barrier, while [leak detection geomembranes](#) are used as primary and secondary barriers. Leak detection can happen at any time when these geomembranes are combined with [drainage](#) geocomposites, addressing even the highest environmental concerns.

[GCLs](#) are ideally suited for use in landfill caps and closures. Used alone or in conjunction with a [linear low-density polyethylene \(LLDPE\)](#) geomembrane it provides excellent resistance to the deleterious effects of differential settlements and seasonal temperature fluctuations.

Covered caps need significant design considerations and maintenance to avoid erosion of the cover. Those issues are eliminated with the fully anchored and fully synthetic [grass capping system](#).





# REMEDIATION

Abandoned landfills are a growing environmental concern as many of these were not operated with today's regulatory standards. Capping and remediating abandoned landfills present opportunities for beneficial reuse.

While remediation of these sites present a huge geotechnical challenge, capping and vertical barrier systems offer opportunities to address issues of erosion, gas migration and groundwater protection.



# WASTE MANAGEMENT SOLUTIONS

## HDPE SERIES



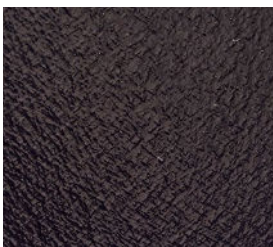
[HDPE Series](#) is a high-density polyethylene geomembrane that exceeds the requirements of the international and local specification standards for HDPE geomembrane liners. This series of geomembrane liners offers proven performance as primary containment barrier in landfill applications.

## LLDPE SERIES



[LLDPE Series](#) is a linear low-density polyethylene geomembrane that exceeds the requirements of international and local specification standards for LLDPE geomembrane liners. The flexibility and elongation performance of this series of liners are the perfect solution for landfill cell cover design.

## LEAK LOCATION FINISH



[Leak Location Finish](#) is essential where you can't afford a leak. It is the most cost-efficient and reliable leak detection method in the industry, improving damage detection in both exposed and covered landfill applications, even after installation.

## WHITE REFLECTIVE FINISH



[White Reflective Finish](#) helps to keep the liner cooler, resulting in fewer wrinkles. Fewer wrinkles mean easier installation of cover soil and increasing the lifespan of the liner.



## FABRIC-ENCASED GCL



[BentoLiner](#) fabric-encased geosynthetic clay liners have proven long term creep resistance and internal shear strength properties, which make them ideal for a wide range of containment lining and capping solutions.

## GUNDSEAL®



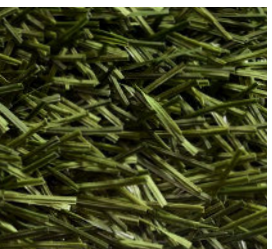
[Gundseal](#)® is a composite liner system consisting of sodium bentonite adhered to a polyethylene geomembrane. This acts as a barrier and provides the best leak protection for waste containment applications.

## DRAINAGE GEOCOMPOSITES AND GEONETS



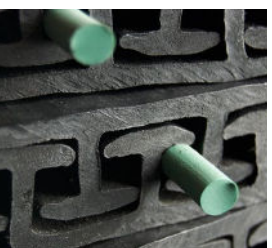
Our broad range of geosynthetic [drainage geocomposites and geonets](#) are tailored for landfills, transmit fluids and gases in various conditions and are used for leak detection and collection.

## LiteEarth™



[LiteEarth](#)™ capping system is an aesthetically pleasing monolithic geosynthetic system that eliminates the need for soil cover and reduces the risk of erosion from wind or water.

## VERTICAL BARRIER



[Vertical barrier](#) wall systems are designed to block lateral migration of subsurface fluids to allow for containment, exclusion, treatment or removal of groundwater seepage and hazardous gases. [CurtainWall](#) is the choice for trenched applications, while [GundWall](#)'s interlocking system is ideal for trenchless applications.



# WHY SOLMAX

Our no-compromise approach to quality and reliability makes [Solmax](#) the brand of choice. As we have grown, so have our capabilities. Now represented in more regions, we have a clear competitive advantage. It means faster deliveries and better service for our customers, today and tomorrow. And, with some of the smartest minds in the business, Solmax brings products to market which no other company can offer.

Our key objective—to enable progress by protecting the earth—propels us forward. With better support and solutions to protect the ground, our customers can aim higher, achieve more, faster.

Our strategy to build the capacity, capability, reach, expertise, and culture to deliver innovation rapidly and at scale, is well advanced. Our people are motivated, united by a single vision: to set the pace and reshape the industry.

## SETTING STANDARDS

Solmax works with governments to draw up industry regulations, collaborates with stakeholders worldwide to raise environmental requirements, and enhances technical designs for projects.

Groundbreaking products brought to market by Solmax and its wholly owned companies include the first [HDPE geomembranes](#), textured liners, [geosynthetic clay liners \(GCLs\)](#), [white reflective geomembranes](#), [conductive geomembranes](#), and high-flow and pressure-resistant [drainage solutions](#).







## ISO AND INDUSTRY-RATED

Solmax has achieved ISO 14001 certification for environmental management, and ISO 9001 for quality assurance. Our laboratories are accredited by the GAI-LAP (Geosynthetic Accreditation Institute - Lab Accreditation Program), assuring our customers that we apply the highest standards in product testing. Solmax has also achieved BAM, Asqual, KIWA, CE, and other certifications.

## QUALITY ASSURANCE

Extensive manufacturing quality assurance (MQA) testing is performed on our products at our labs. Our MQA program starts with testing and verification of specially formulated quality resins and other raw materials and extends through delivery to the project site.

Our standards are high. All Solmax [geomembranes](#), [GCLs](#), and [drainage](#) solutions are tested for strength and durability, and against key criteria. Geomembranes, for example, are 100% spark tested for pinholes during the manufacturing process to ensure every delivered roll is leak free.



# OUR LOCATIONS



 **HEADQUARTER**  
**VARENNES, QC | CANADA**

**SOLMAX.COM**

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.