

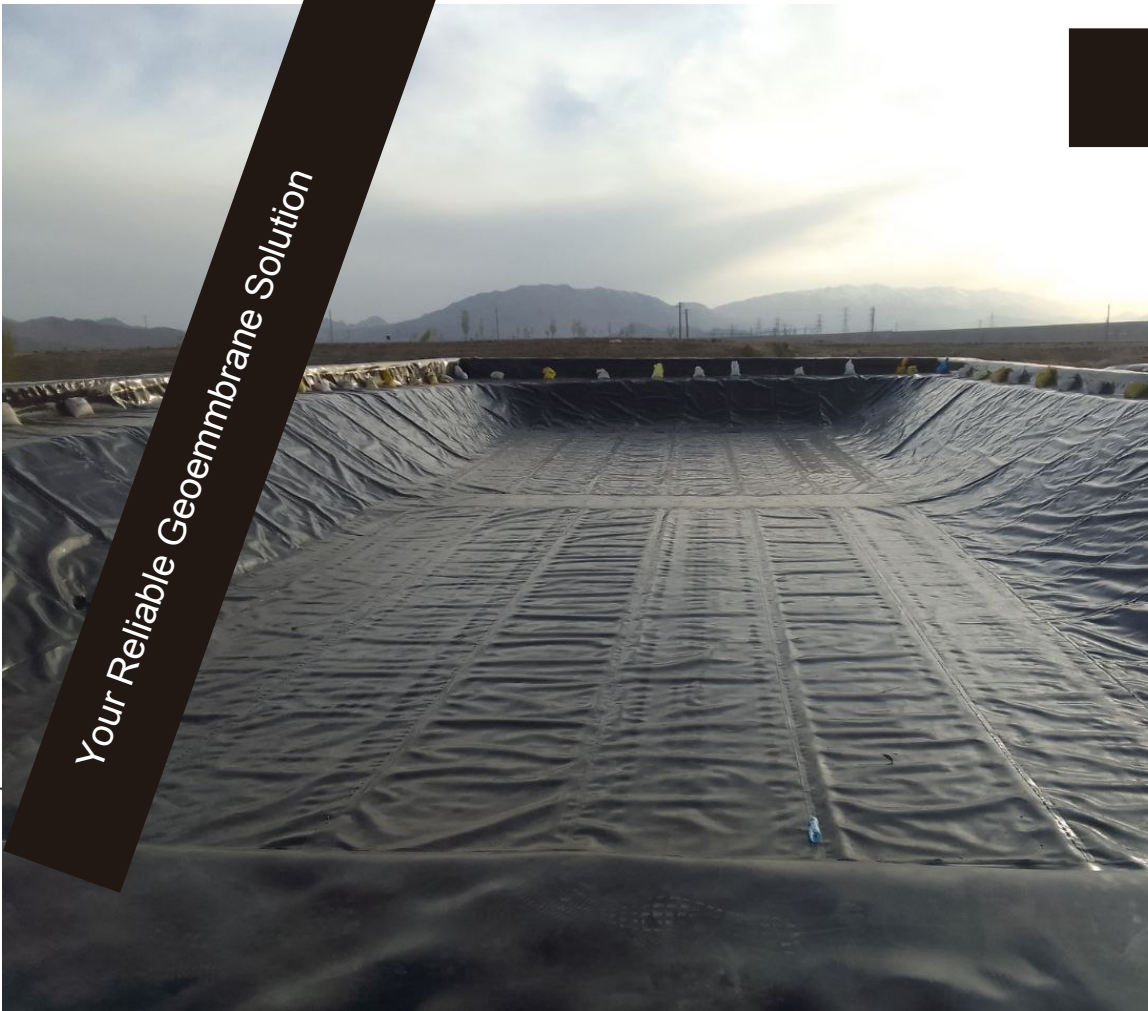


Geo-membrane





Aian Khak



Your Reliable Geomembrane Solution

Arian khak is the environmental technology business group, a listed company founded in Iran, with global operations. Arian khak has dedicated itself to developing and manufacturing of high-quality geomembranes.

At Arian khak, we commit to provide innovative geomembrane solutions that meet challenging requirements of various industries. Our journey over the past decades has been marked by a relentless pursuit of excellence, a commitment to consistent quality control, and an unwavering focus on customer satisfaction.



Arian khak Geomembrane is made of premium polyethylene resins with professional formulations to satisfy different project needs.



Energy



Arian khak Geomembranes are widely used in the various storage ponds and dams for ENERGY applications, such as evaporation ponds and coal ash dams for coal-burning power plants, pumped storage ponds for hydroelectricity power plants and Coal Seam Gas CSG Produced Wastewater ponds and Brine ponds. Featuring superior impermeability, tensile strength and strong resistance to puncture, environmental stress crack and UV radiation, Arian khak Geomembranes provide a long-term performance to the containments for ENERGY industries.

Waste

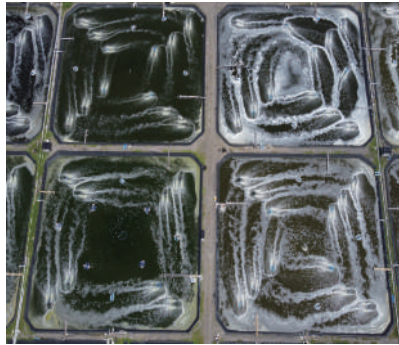


Waste management has always been critical in the industries. Arian khak Geomembranes are widely used for the municipal solid waste landfills, the hazardous material landfills, and evaporation ponds. Featuring strong chemical resistance, impermeability and flexibility, Arian khak Geomembranes generate a durable and reliable environmental protection solution.



Mining

Geomembran is made of premium polyethylene resins with professional formulations to satisfy different project needs.



Water conservation is one of the most important issues in the 21st century.

Polyethylene's safe, nontoxic properties make Arian khak Geomembrane an ideal lining material for aquaculture ponds, canals, channels, floating covers and water containment applications.

Blended with premium polyethylene resin, adequate carbon black and antioxidant, Arian khak Geomembranes are resistant to the UV radiation under an exposed environment in the long term.

Water.



Mining applications require the most reliable barriers for the containment lining systems. Arian khak Geomembranes are prevalingly used in the highest specification, most durable and long lasting lining systems for specialized mining needs. Arian khak Geomembranes are available in smooth and textured finishes to utilize the friction advantage for slope lining.

Arian khak Geomembranes with the best chemical resistance has been used successfully for many years as liners for mining heap leach pads and tailing dams.

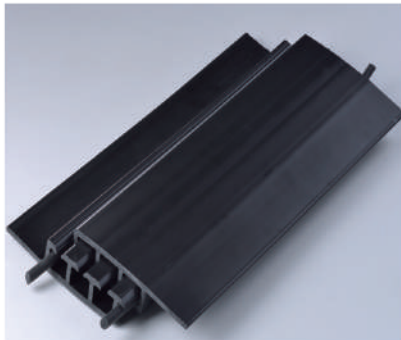
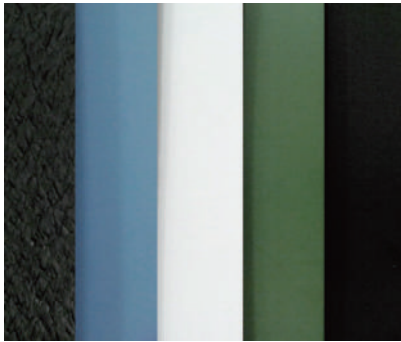


www.ariankhak.com

Arian khak Geomembrane is made of premium polyethylene resins with mature formulations to satisfy with different project applications.

LLDPE

Linear Low Density Polyethylene (LLDPE) not only has the superior features as HDPE but also provides excellent flexibility and elongation. It is ideally suitable for lining projects requiring special flexibility.



Finish

Arian khak Geomembrane is available in standard smooth, textured, colored and conductive finishes upon request. Textured finishes provides excellent friction. Electrically conductive finish on bottom layer against subgrade can be rigorously spark-tested for ruptures and leads in whole lining systems.

HDPE

High Density Polyethylene (HDPE) is the most common material for lining solutions. It features outstanding dimensional stability, impermeability, and strong resistance against chemicals, ultraviolet, and environmental stress crack.



Accessories

Made of the same polyethylene material, welding rods, and embedded attachment system to the concrete serve as perfect complements to Arian khak Geomembrane.

Quality Policy

Arian khak's strict QA/QC programs conform to or exceed the GRI GM13 and GM17 standard and are certified to affix the CE marking. Arian khak have implemented a comprehensive quality management system that covers every aspect of whole operations, from the raw materials we use to the finished product we deliver, Arian khak strive to exceed the customer's expectations in terms of quality and performance.

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Extruder Welding Machine

Extruder welding machines weld plastic welding rods by pushing them through a heated barrel with a screw. The rod softens and mixes inside the barrel, forming a melted plastic bead that is applied directly to the geomembrane layer.



Industrial Heat Gun



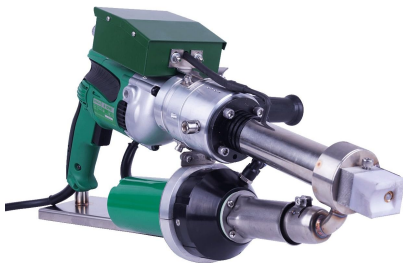
An industrial heat gun, sometimes called a heat blower, is a versatile tool useful for various home improvement tasks such as paint removal and drying wet wood. One major advantage of industrial heat guns over other heat-producing tools is that they are flameless. While open flames can damage the surface being heated and even cause fires, the hot air from an industrial heat gun provides a safer heat source for your projects.

Arian Weld

The Arian Weld Geomembrane Sheet Welding Machine is designed for welding non-polar thermoplastic polymer sheets. It operates at temperatures above 140° C, enabling the thermal joining of geomembranes.

This machine is widely used in industrial applications such as dam construction, tunnel building, and construction projects. It offers precise temperature and time control for seamless and reliable geomembrane welding over time.

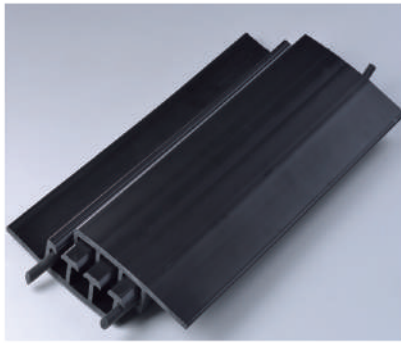
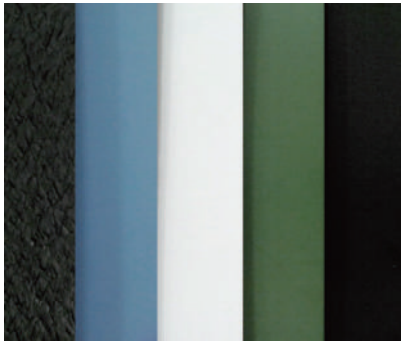
Geomembrane welding machines are made from non-polar thermoplastic polymers known for their chemical stability, operating at melting points above 140°C and extruding at around 200°C. Since geomembranes cannot be bonded chemically, thermal welding is the necessary connection technology.



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Data sheet

Tested Property	Test method (ASTM)	Unit	Value		
			HDPE	HDPE	HDPE
Thickness	D-5199	mm	1	1.5	2
Density	D-792	gr / m3	0.945	0.943	0.941
Tensile Strength	D-6693	KN / m	30	40	29
Elongation at break	D-6693	%	700	700	700
Yield Strength	D-6693	KN / m	25	22	55
Yield Elongation	D-6693	%	12	12	12
Tear Strength	TD D-1004	N	150	220	280
	MD D-1004	N	140	200	260
Puncture Strength	D-4833	N	400	550	670
Carbon Content	D-1603	%	2.2	2.2	2.4

GRI Test Method GM13*

SI (METRIC) UNITS

Table 1(b) – High Density Polyethylene (HPDE) Geomembrane - Smooth

Properties	Test Method	Test Value							Testing Frequency (minimum)
		0.75 mm nom. (mil) -10%	1.00 mm nom. (mil) -10%	1.25 mm nom. (mil) -10%	1.50 mm nom. (mil) -10%	2.00 mm nom. (mil) -10%	2.50 mm nom. (mil) -10%	3.00 mm nom. (mil) -10%	
Thickness - mils (min. ave.) • lowest individual of 10 values	D5199								per roll
Density (min.)	D 1505/D 792	0.940 g/cc	0.940 g/cc	0.940 g/cc	0.940 g/cc	0.940 g/cc	0.940 g/cc	0.940 g/cc	90,000 kg
Tensile Properties (1) (min. ave.) • yield strength • break strength • yield elongation • break elongation	D 6693 Type IV	11 kN/m 20kN/m 12% 700%	15 kN/m 27 kN/m 12% 700%	18 kN/m 33 kN/m 12% 700%	22 kN/m 40 kN/m 12% 700%	29 kN/m 53 kN/m 12% 700%	37 kN/m 67 kN/m 12% 700%	44 kN/m 80 kN/m 12% 700%	9,000 kg
Tear Resistance (min. ave.)	D 1004	93 N	125 N	156 N	187 N	249 N	311 N	374 N	20,000 kg
Puncture Resistance (min. ave.)	D 4833	240 N	320 N	400 N	480 N	640 N	800 N	960 N	20,000 kg
Stress Crack Resistance (2)	D 5397 (App.)	300 hr.	300 hr.	300 hr.	300 hr.	300 hr.	300 hr.	300 hr.	per GRI GM-10
Carbon Black Content - %	D 1603 (3)	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	2.0-3.0%	9,000 kg
Carbon Black Dispersion	D 5596	note (4)	note (4)	note (4)	note (4)	note (4)	note (4)	note (4)	20,000 kg
Oxidative Induction Time (OIT) (min. ave.) (5) (a) Standard OIT — or — (b) High Pressure OIT	D 3895 D 5885	100 min. 400 min.	100 min. 400 min.	100 min. 400 min.	100 min. 400 min.	100 min. 400 min.	100 min. 400 min.	100 min. 400 min.	90,000 kg
Oven Aging at 85°C (5), (6) (a) Standard OIT (min. ave.) - % retained after 90 days — or — (b) High Pressure OIT (min. ave.) - % retained after 90 days	D 5721 D 3895 D 5885	55% 80%	55% 80%	55% 80%	55% 80%	55% 80%	55% 80%	55% 80%	per each formulation
UV Resistance (7) (a) Standard OIT (min. ave.) — or — (b) High Pressure OIT (min. ave.) - % retained after 1600 hrs (9)	D 3895 D 5885	N. R. (8) 50%	N.R. (8) 50%	N.R. (8) 50%	N.R. (8) 50%	N.R. (8) 50%	N.R. (8) 50%	N.R. (8) 50%	per each formulation

(1) Machine direction (MD) and cross machine direction (XMD) average values should be on the basis of 5 test specimens each direction

Yield elongation is calculated using a gage length of 33 mm

Break elongation is calculated using a gage length of 50 mm

(2) The yield stress used to calculate the applied load for the SP-NCTL test should be the manufacturer's mean value via MQC testing.

(3) Other methods such as D 4218 (muffle furnace) or microwave methods are acceptable if an appropriate correlation to D 1603 (tube furnace) can be established.

(4) Carbon black dispersion (only near spherical agglomerates) for 10 different views:

9 in Categories 1 or 2 and 1 in Category 3

(5) The manufacturer has the option to select either one of the OIT methods listed to evaluate the antioxidant content in the geomembrane.

(6) It is also recommended to evaluate samples at 30 and 60 days to compare with the 90 day response.

(7) The condition of the test should be 20 hr. UV cycle at 75°C followed by 4 hr. condensation at 60°C.

(8) Not recommended since the high temperature of the Std-OIT test produces an unrealistic result for some of the antioxidants in the UV exposed samples.

(9) UV resistance is based on percent retained value regardless of the original HP-OIT value.



For any commercial or technical enquiry,
our professional representatives and
distributors would be pleased to assist you
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