ZENA-SEAL
WATERPROOFING
MEMBRANE

ZENITH™ ZENITH INDUSTRIAL RUBBER PRODUCTS PVT. LTD.

Quality Rubber Solutions

INDEX

" Ensuring total customer satisfaction is our motto which we strive to achieve through continuous improvement in production process, upgrading the manufacturing system in line technological development, doing things right the very first time, and delivering Quality products through optimum human resources development."

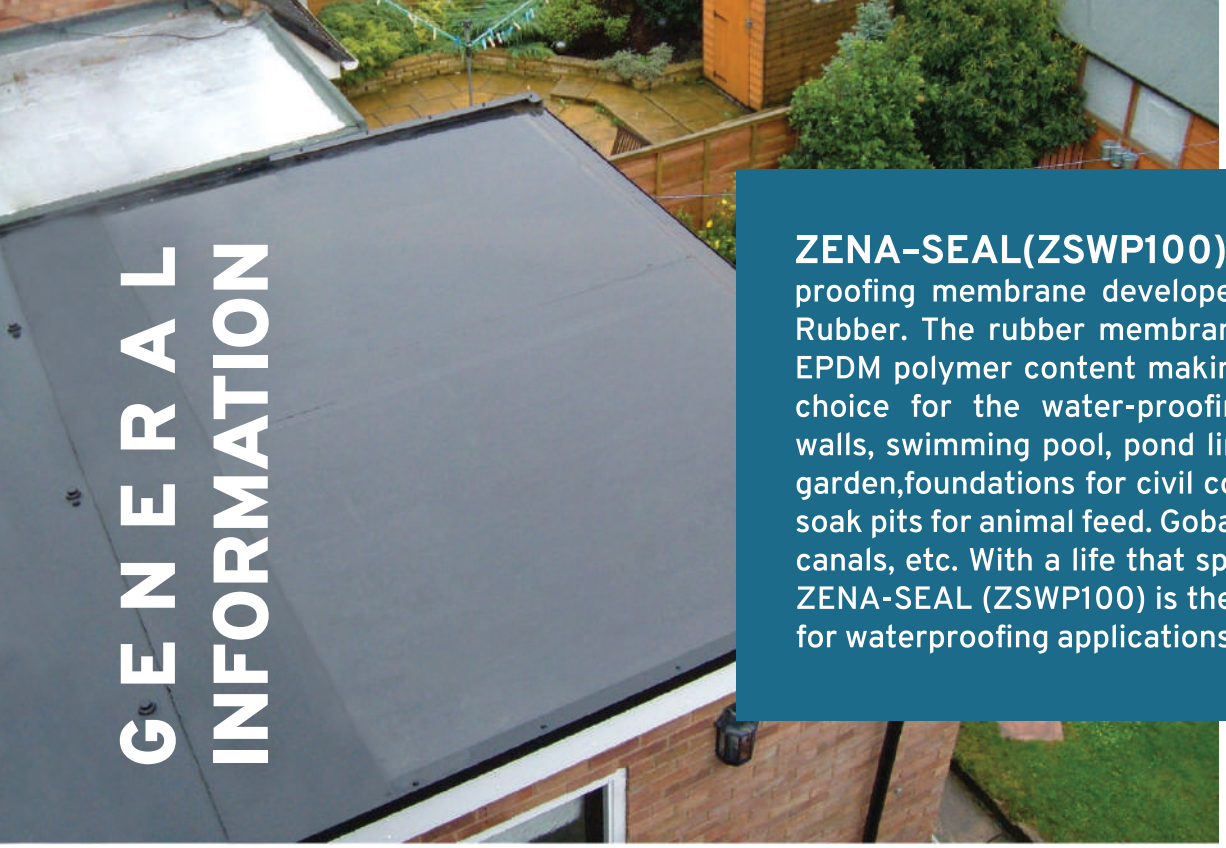
INTRODUCTION

Zenith Rubber was established in 1965 and is a leading manufacturer and exporter of rubber sheeting, flooring, coated fabrics, matting and moulded products.

In 2006, Zenith upgraded its entire manufacturing facilities and build a state of the art plant 60kms from Mumbai. Spread over 35,000 sq meters, this facility houses a completely integrated plant that has world class capabilities from compounding to dispatch of the goods, giving Zenith a complete control over its manufacturing process.

Today it enjoys the leadership status as a major exporter of quality Rubber sheets, Rubber flooring, Rubber coated fabrics & Rubber mats. Zenith is a Government Recognized Export house with present installed capacity of 40,000 tons of rubber products per annum.

Over 90% of its products are exported to five continents around the world. Zenith has built up a wide base of discerning customer all over the world. This has been made possible with the Zenith team of dedicated & trained personnel having earned a strong reputation of its capabilities to innovate.



GENERAL INFORMATION

ZENA–SEAL(ZSWP100) is a water proofing membrane developed by Zenith Rubber. The rubber membrane has 100% EPDM polymer content making it an ideal choice for the water-proofing of roofs, walls, swimming pool, pond lining, terrace garden,foundations for civil constructions, soak pits for animal feed. Gobar gas Plants, canals, etc. With a life that spans 20years ZENA-SEAL (ZSWP100) is the best choice for waterproofing applications.

ZENA – SEAL (ZSWP100) is produced in accordance to ASTM D4637 and ASTM 6134. The sheet conforms to all requirements for non-reinforced black EPDM rubber sheet for use in waterproofing applications.

DIMENSIONS

Thickness	1 mm to 1.5 mm
Width	1 Mtrs to 6.0 Mtrs
Length	10 Mtrs to 30 Mtrs

Packing

Rolls are wrapped on 3 inch paper core with outer surface of rolls covered with HDPE.

ZENA-SEAL (ZSWP100) An EPDM membrane are light weight have exceptional long lasting elasticity permitting the materials to withstand building movement, expansion-construction of building surfaces, high resistance to ozone and weather as they are known as “Crack-Less Rubbers”, low Specific Gravity – lightest among all rubbers, widest temperature range from -40 C to +130 C, excellent steam and weather resistance.

TECHNICAL SPECIFICATION

EPDM MEMBRANE BASED ON ASTM - D4637

Properties	Test Method	Specification	Test Method	Specification
Tolerance on Nominal Thickness,%	ASTM D 412	+/- 10%		
Color	Visual	Black		
Hardness	ASTM D 2240	65 ±5 Sh A	DIN 53505	65±10Sh A
Specific Gravity	ASTM 0297	1.25±/0.5gm/cc³	DIN 53508	1.25±/0.5gm/cc³
Tensile Strength (Min)	ASTM D 412	90Kg/Cm²	DIN 53504	1280.7 PSI
Elongation At Break (Min)	ASTM D 412	300%	DIN 53504	300%
Tear Resistance	ASTM D624 Method C	30kg/cm	DIN 53506	167.97 Lbs/inch
Drop in physical properties - Ageing After 100C for 600 Hrs				
- Tensile Strength (Min)	ASTM D 412	10%	DIN 53504	10%
- Elongation (%)	ASTM D 412	30%	DIN 53504	30%
- Tear resistance (kg/cm)	ASTM D 412	15%	DIN 53506	15%
- Linear dimensional change max %	ASTM D 1204	+/-2%		
Ozone resistance : On exposure to 100 ppm & Ozone in air 96 hrs. @40c at 20% strain	ASTM D 1149	No crack	DIN 53509	No crack
Glass transition Tempreature	ASTM D 746	-55		
Resistance Water absorption, after 7 days immersion in 70C, % change in mass	ASTM D 471	4.0	DIN ISO1817	4.0
Compression Set , 22Hrs. at 70C	ASTM D 395	30%	DIN ISO817	30%
Specification No : ZRWP100/10	Rev. No. 9.8	Rev. No. 9.8		

TECHNICAL SPECIFICATION

EPDM MEMBRANE BASED ON ASTM - 6134

Properties	Test Method	Specification	Test Method	Specification
Tolerance on Nominal Thickness,%	ASTM D 412	+/-10%		
Color	Visual	Black		
Hardness	ASTM D 2240	65±5 Sh A	DIN 53505	65± 5Sh A
Specific Gravity	ASTM D 297	1.25±/0.5gm/cc³	DIN 53508	1.25 ±/0.5gm/cc³
Tensile Strength (Min)	ASTM D 412	90Kg/Cm²	DIN 53504	1280.7 PSI
Elongation At Break (Min)	ASTM D 412	300%	DIN 53504	300%
Abrasion Resistance	ASTM D5963	250mm³	DIN 150 4649	250 mm³
Compression Set (70° C/24 Hrs) / (max)	ASTM D395 Method B	30%	DIN 180 815	30%
Tear resistance (Angular) min	ASTM D624 Method c	30 kg/cm	DIN 53506	167.97 lbs/inch
Resistance to Heat Aging				
- Properties after 166 hrs @ 115°C	ASTM D 573			
- Tensile Strength min.	ASTM D 412	85kgs./ CM2	DIN 53504	1209.55 PSI
- Elongation (%)	ASTM D 412	210	DIN 53504	210
- Linear dimensional change max.%	ASTM D 1204	+/-1		
- Brittleness temperature °C	ASTM D 746	-45		
Resistance water absorption, after 166Hrs. Immersion @ 70° C				
% change in mass	ASTM D 471	4.0	DIN ISO1817	4.0
Water Vapor Permeability Max. per-mills	ASTM E 96	3.5		
Specification No : ZRWP100/10	Rev. No.: 9.8	Rev. No. : 9.8		

APPLICATION AREAS *(ZENA-SEAL -ZSWP100)*

EPDM ROOFING

Waterproofing for roof systems need to withstand a lot of Changing weather conditions, flash floods, severe unpredictable weather and structural and mechanical influences, the list goes on. EPDM rubber has been used successfully to waterproof large commercial buildings for more than thirty years, The low-cost types of EPDM are favoured for commercial roofs which is much stronger and less likely to crack during extreme weather conditions.

WALL PROTECTION

Wall water proofing refers to a technique used to prevent water from entering in to and thus by protecting the structure. Over the past 10 Years polymer based water proofing products have been developed. EPDM based product lasts for a life time of the building and are not affected by soil Ph. EPDM based water proofing material have the advantages of a low viscosity that can be installed directly on wall.

MINING & CONSTRUCTION

The underground constructions has witnessed a shift in preference from dry to wet and then to polymer based application in both tunneling and mining. Leaking water can cause serious damage to the structure. ZENA-SEAL carries excellent water-proofing capabilities and remains flexible with its use on most substrates like cement, wood, walls, and floors. It provides ease in cleaning and reduces maintenance cost with long life durability.

GEO-MEMBRANE

ZENA-SEAL remains highly flexible even at a low temperature (down to -25ºC) which enables installation in any climate and at any time. It can be stretched up to 300% which makes installation very comfortable even at a difficult sub grades and huge application. ZENA-SEAL offers superior resistance to ozone and ultra violet radiation.

GREEN ROOFS USING RUBBER MEMBRANE

EPDM Rubber Membrane is widely used as a waterproof membrane for green roof construction because of its waterproofing properties and resilience. Green roofs serve several purpose for a building such as absorbing rainwater, providing insulation, creating a habitat for wildlife, and helping to lower urban air temperatures and combat the heat island effect.

FEATURES & COMPARISION

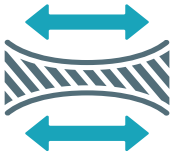
The Superior properties of EPDM WATER PROOFING:

The life of any building is dependent on the designer recognizing and considering all the factors relevant to its location, shape and function of the building. Reliable roofing is the most important part, which decides the quality and ultimately the life of the building. Efficient roofing sheeting should never allow even small traces of water to pass through at any given point and should maintain this characteristic over a long period of time. It should withstand even slightest of movements of the structure, bad weather, chemical degradation and mechanical stress and strains.

ZENA-SEAL is the perfect solution, which meets the stringent requirement of good water proofing roofing sheet. In the long run it is more economical than traditional water proofing systems.

ZENA-SEAL (ZSWP 100) has more waterproofing power than conventional material EPDM sheet (with a thickness of 1 mm to 1.5 mm) is 22 times more powerful than asphalt and is 59 times more reliable waterproofing than PVC sheet.

ZENA-SEAL (ZSWP100) will take the "movement" of the structure



Since ZENA-SEAL (ZSWP100) sheet can be stretched (approx. 300%), it will not tear, crack or split but returns to the original position without any damage to the membrane. ZENA-SEAL (ZSWP100) has an unfailing flexibility.

ZENA-SEAL withstands extremes of temperature

Because of the EPDM base polymer ZENA-SEAL (ZSWP100) is able to perform over a wide range of temperatures (-25° to + 130° C). ZENA-SEAL (ZSWP100) sheet does not become brittle in freezing weather nor soften in hot weather.

ZENA-SEAL is minimal extra load on your roof

ZENA-SEAL (ZSWP100) roofing sheet is one of the lightest roof membrane materials (with a specific gravity of approx. 1.25 kg/m2). It is highly suitable for lightweight structures and puts negligible extra load on roofs that are to be water proofed.

ZENA-SEAL (ZSWP100) lasts for more than 20 Years

Presently in our country, asphalt based coating is employed in many buildings to protect the roof from leaking. However, the life of such waterproofing is limited and the coating has to be replaced every 2 to 3 years. Because of poor dimensional stability of asphalt in extreme temperatures we see many ruptures in the waterproofing. This is not the case with ZENA-SEAL (ZSWP100). With the water & weather resistance of EPDM, and good dimensional stability, ZENA-SEAL (ZSWP100) roofing sheets are designed to last to last for more than 20 years.

FEATURES & COMPARISON

Maintenance Free Waterproofing

As the ZENA-SEAL (ZSWP100) EPDM Rubber Sheet does not deteriorate due to weather, heat, sunlight and oxidation virtually no maintenance is required for the roof.

Resistant to most of the acidic & alkaline conditions for wide range of temperature

As the EPDM rubber is highly saturated polymer, it has better chemical and environmental resistance than other available polymeric materials. Hence ZENA-SEAL (ZSWP100) can be used in chemical plants for their drainage and canal systems to avoid seepage through the RCC / CONCRETE work which in turn can damage surrounding fields. The following table shows the comparative properties of EPDM roof sheeting against other materials used for roof protection, which indicates superiority of EPDM roof sheeting.

COMPARISON OF ZENA-SEAL WITH OTHER WATER PROOFING TECHNIQUES

Properties	ZENA-SEAL EPDM Roofing ZSWP 100	PVC Roofing	Modified Bitumen Roofing	BUR Roofing (Bituminous built up Roofing
UV resistance	E	P-F	F	G
Ozone resistance	E	E	F	F
High Temperature resistance	E	E	F	F
Cold Crack	E	F-G	P	P
Resistance to Plasticizer Migration	E	F-G	P	P
Dimensional	E	P-F	F	F
Install over existing roof.	YES	YES	YES	NO
NA = Not Applicable, E = Excellent, G = Good, F = Fair, P = Poor				

INSTALLATION INSTRUCTIONS

Step-1

Remove all of the existing roof material and metal flashing. Sweep all dirt and debris from the roof with the push broom.

Step-2

Inspect the roof surface for damage. Repair any damaged areas before installing the EPDM rubber membrane sheets.

Step-3

Lay insulation boards on the roof. Line the boards up flush to each other and butt the ends up together to ensure a uniform roof surface. Secure the insulation boards to the roof by attaching the insulation plates to the insulation boards. Insert galvanized screws through the insulation plates and attach the plates to the roof using the drill. Insert a plate and screw every 2 square feet of board.

Step-4

Sand any rough areas of the insulation board. Sweep all dirt and debris from the insulation board with the push broom before laying the EPDM rubber sheets.

Step-5

Roll out EPDM roofing membrane onto the roof. Overlap the side edges of each previously rolled sheet by 4 inches (0.10 Mtrs.). Overhang the edge of the roof by 3 inches (0.08 Mtrs.). Mark locations for vents & pipes access through the rubber. Allow the material to relax for 30 minutes before applying adhesive.

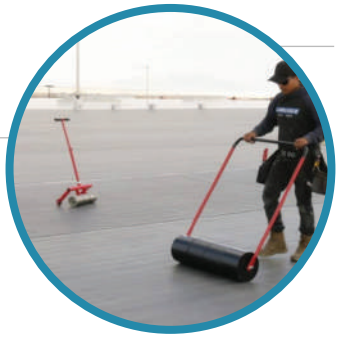
INSTALLATION INSTRUCTIONS

Step-6

Fold the first rubber sheet back on top of itself. Apply an even layer of bonding adhesive to the deck of the roof using the extension roller. Allow the adhesive to dry for 15 minutes until it is tacky to the touch. Fold the rubber sheet back over onto the roof deck. Smooth the sheet with the roof roller. Start from the centre of the sheet and work out. Roll over the sheet with a 75 Pound (34 Kg.) roof roller to smooth out air bubbles and wrinkles.

Step-7

Fold the second half of the sheet back onto the half that was previously glued down. Repeat step 6, but leave 4 inches (0.10 Mtrs.) of the edge without glue to follow for the seam. Fold the roofing membrane back onto the roof deck. **Roll over the sheet** with the 75 pound (34 Kg.) roof roller to smooth out air bubbles and wrinkles.

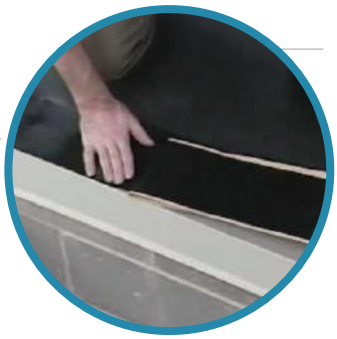


Step-8

Repeat step 6 and 7 to bond all of the roofing membrane sheets of the roof. Allow the sheets to cure for an hour. Roll over the entire roof with the roof roller to remove wrinkles and ensure an airtight seal.

Step-9

Measure 1 inch (0.025 Mtrs.) beyond the edge of the overlap of the first sheet. Fold the sheet back to expose the 4 inches (0.10 Mtrs.) of unglued rubber. Use a paint brush to apply seam primer to the 4 inch (0.10 Mtrs.) section and to the area on the sheet that it will mate with.



Step-10

Attach the roof tape to the first sheet with the adhesive side down, facing the base sheet. Roll over the tape with the seam roller. Fold the overlapping sheet back down the base sheet. Slowly pill the backing from the tape ata45-degree angle while simultaneously pressing the top rubber sheet down into the tape. Roll the seam roller over the taped seam to bond it.

Step-11

Repeat Step 9 and 10 until every seam has been bonded and secured.

BONDING METHOD

BONDING METHOD FOR EPDM MEMBRANE (ZENABOND CA-22)

DESCRIPTION – ZENABOND CA-22 is inflammable, component adhesive Based on polychloroprene, with special tackyfier and additives. It is specially developed for EPDM sheet. It has good film forming nature, which gives uniform bonding to most substrates.

USES –ZENABOND CA22 is used for ZENA-SEAL (ZSWP 100) sheet, can be also use for most of porous and non-porous surfaces.

ADVANTAGES

- Excellent bonding with EPDM v/s EPDM and EPDM v/s Bitumen modified tape
- Excellent film forming nature
- Water resistance
- Excellent heat Resistance
- Chemical Resistance
- Suitable to all climatic condition
- Economical
- Very easy to apply

STORAGE SHELF LIFE

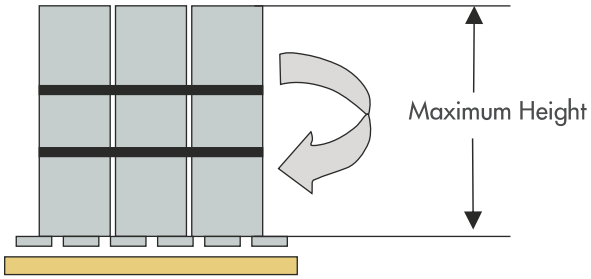
- Store rubber cover,
- Protect from direct sunlight and high temp.
- Shelf life is up to 12 months in unopened container when stored as directed.

PACKING

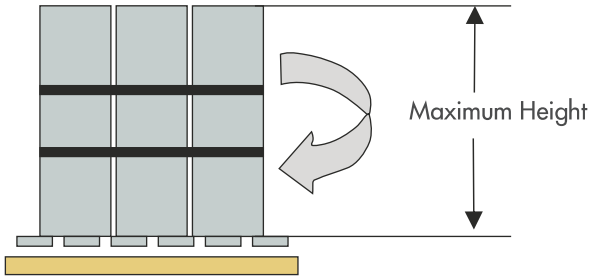
ZENABOND CA22 is available in 250ml, 500ml, 750ml, 1000ml containers.

Technical Data	
Base	Aromatic CR
No of Component	One
Color	Black
Solid	22-24%
Viscosity	6k - 10k cps (Brook Field)
Density	0.82+/-0.02
Service Temperature	-20C to +96C
Flash Point	-20 C
Water Resistance	Excellent
Chemical Resistance	Good

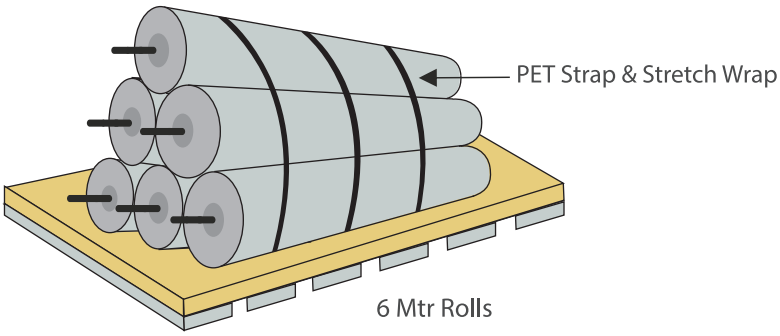
STORAGE & SHIPPING



Large Rolls



Short Rolls



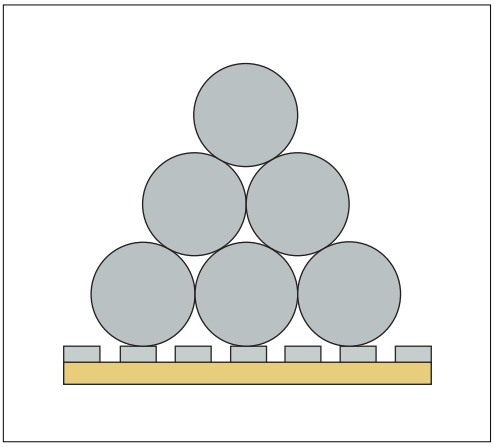
6 Mtr Rolls

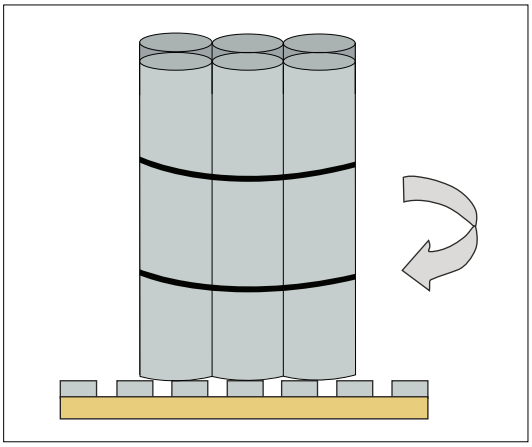
All material must be secured to the pallet in such a manner as to prevent shifting according to diagram below. Metal banding is not to be used.

All rolled material must be inside of pallet .

All material must be placed on a pallet large enough so there is no overhanging material on any side.

Shrink wrapped and strapped with plastic strapping “NO METAL BONDING”





ACHIEVEMENTS & MEMBERSHIP

- AIRIA Heightest Export Award.
- Best Exporter Gold Trophy Award - FIEO.
- Special Export Award - Capexil.
- State Export Award - Directorate of Industries
- Certificate of Merit Maharashtra Government.
- Membership with AIRIA (All India Rubber Industries Association)
- Membership with CAPEXIL (Chemical and Allied Export Promotion Council of India Limited)
- Membership with FIEO (Federation of Indian Export Organisations)
- Membership with IMC (Indian Merchant Chamber)
- Certificate of Government Recognized Export House

ISO 14001 : 2015

ISO 9001 : 2015

45001:2018

SYSTEM CERTIFICATE

ISO 9001:2015

ISO 14001:2015

ISO 45001: 2018

DSIR CERTIFICATION

NABL ISO 17025

PRODUCT CERTIFICATION

CE Certificate

RoHS Intertek Compliance

RoHS - TUV

PAH Compliance

REACH Compliance

US-FDA Certification

WRAS Certificate

WQC Certificate

SVHC Compliance

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Quality Rubber Solutions

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