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REMA TIP TOP/NORTH AMERICA, INC.

Solutions for Wear Protection and Material Build-Up

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Rubber Thickness Recommendations for Impact and Abrasion

The following chart indicates a recommended thickness of **REMALINE 70** to resist materials having a specific gravity similar to ore and a velocity to impact of up to 23 ft./sec.

Ore Particle Size	Drop Height of Particles at 90° Direct Impact Angle				
	3.25 ft.	4.75 ft.	6.50 ft.	8.00 ft.	9.50 ft.
1/8"	1/4"	3/8"			
1/4"	3/8"	3/8"	1/2"		
3/8"	3/8"	1/2"	1/2"	3/4"	
1/2"	1/2"	1/2"	5/8"	3/4"	
5/8"	1/2"	1/2"	3/4"	3/4"	3/4"
3/4"	1/2"	5/8"	3/4"	3/4"	1"
7/8"	5/8"	5/8"	3/4"	1"	1"
1"	5/8"	3/4"	3/4"	1"	1-3/16"
1-1/2"	5/8"	3/4"	3/4"	1"	1-3/16"
2"	3/4"	3/4"	1"	1-3/16"	1-1/2"
2-1/2"	3/4"	1"	1"	1-3/16"	1-1/2"
3"	1"	1"	1-3/16"	1-3/16"	1-1/2"
4"	1"	1"	1-3/16"	1-1/2"	2"
6"	1"	1-3/16"	1-1/2"	1-1/2"	2"
8"	1-3/16"	1-1/2"	1-1/2"	2"	*2-3/8"
10"	1-1/2"	1-1/2"	2"	2"	*2-3/8"
12"	1-1/2"	2"	2"	*2-3/8"	*2-3/8"

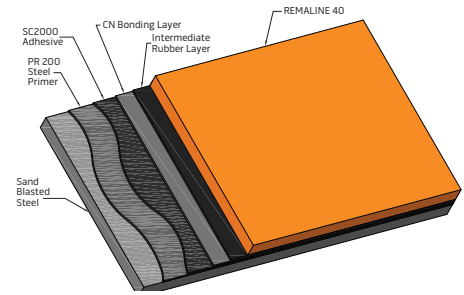
Caution: The thickness shown above with an * are not available in **REMALINE 70**. Maximum thickness is 2" for this product. **REMA TIP TOP** does not recommend laminating sheet stock to achieve this thickness, switch to **KG Bars, ZP Bars or ZP Plates**.

The recommendations given above are based on experimental values provided by **REMA TIP TOP** and are to be used as a general informational guide only. A Wear Protection Questionnaire must be filled out and sent through the proper channels for a system recommendation. This system recommendation will specify specific wear resistant components from the products available from our stock. No Liability whatsoever will be accepted for damage, regardless of its nature and its legal basis, arising from the above chart.

REMA TIP TOP Wear Protection Products - Possible Applications

CN Bonding Layer with Intermediate Layer

The REMA TIP TOP CN bonding layer is specially formulated to work with REMA TIP TOP bonding systems to create the greatest adhesions possible between the rubber and substrate. The CN bonding layer is a semi-cured layer that when activated with the bonding system completes the vulcanization process, creating cross links between the materials that provides the strongest bonds available. The intermediate layer between the rubber sheet and CN bonding layer is propriety to REMA TIP TOP and ensures the base rubber and bonding layer are inseparable. REMA TIP TOP's intermediate layer is differentiated by the softer, more elastic durometer that allows for flexibility and prevents shearing.



CN Bonding layer standard on all sheet rubber products.

Possible Applications	REMA TIP TOP WEAR PROTECTION Products															
	REMALINE 25	REMALINE 35	REMALINE 40 ORANGE	REMALINE 40 MP	REMALINE 40 OIL	REMALINE 40 WHITE FOOD	REMALINE 50	REMALINE 60	REMALINE 70	REMATHAN G 65/CN	REMATHAN G 75/CN	REMATHAN G 90/CN	REMAFLON	REMALEN	REMALOX	REMALOX-HD
Wet Applications	✓	✓	✓	✓	✓	✓	✓			✓	✓				✓	
Dry Applications	✓						✓	✓	✓			✓			✓	✓
Material Build-Up	✓	✓	✓	✓							✓	✓	✓	✓	✓	
Caking and Bridging	✓										✓	✓	✓	✓	✓	
Flexilo	✓	✓	✓													
Excavator Buckets	✓	✓	✓													
Pipe Lining		✓	✓	✓			✓									
Launders		✓	✓	✓			✓	✓	✓	✓	✓					
Pumps		✓	✓	✓			✓									
Cyclones		✓	✓	✓			✓									
Floatation Cells		✓	✓	✓	✓		✓									
Tank Linings		✓	✓	✓	✓		✓									
Chute Linings		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Non-Driven Pulleys	✓		✓				✓	✓								
Return Idlers	✓		✓	✓			✓									
Vibratory Feeders			✓	✓	✓		✓	✓	✓							
Underflow Pans			✓	✓			✓	✓		✓						
Surge Bin Linings			✓	✓			✓	✓	✓	✓	✓					
Storage Bin Linings			✓	✓	✓	✓	✓	✓	✓	✓						
Impact Curtains								✓	✓							
High Impact Areas								✓	✓	✓	✓	✓			✓	✓
Cut and Abrasion Resistance against Sharp Ore and Stone								✓	✓	✓	✓				✓	✓

The recommendations given above are to be used as a general informational guideline only. All items subject to minimal geometric configuration. The Wear Protection Questionnaire must still be filled out and sent through the proper channels for an application specific recommendation. No liability whatsoever will be accepted for damage, regardless of it's nature and it's legal basis arising from the above chart.

RUBBER LINING MATERIALS

REMALINE 25 - The safe protection against wear and material build-up

REMALINE 25 is a soft material based on natural rubber with elastic properties. Due to its elasticity, REMALINE 25 is suitable for preventing build-up in equipment conveying sand/water mixtures and fine material. REMALINE 25 also offers excellent noise dampening and reduction of noise emissions.



REMALINE 25

REMALINE 35 - Premium quality for wet wear and build-up

REMALINE 35 is an highly elastic natural rubber compound with excellent resistance to wet abrasion and sharp particles. The properties of REMALINE 35 make it the optimum rubber lining for sand and gravel industry equipment, as well as in the glass industry. REMALINE 35 has also proven valuable with sticky material such as loam and clay. Prevents material build-up and reduces noise emissions.



REMALINE 35

REMALINE 40 ORANGE - Universal Lining for wet and dry applications

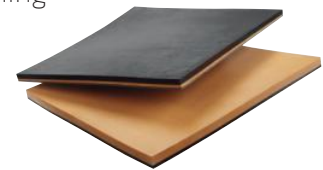
REMALINE 40 ORANGE has been designed for a variety of wet or dry applications. In dry applications, REMALINE 40 ORANGE is frequently used in abrasion applications for processing sand and gravel. In wet applications, it has proven its outstanding worth as a protective coating against sharp particles thanks to its high resistance to tearing. REMALINE 40 ORANGE also features excellent qualities for eliminating bridge formation and build-up.



REMALINE 40 ORANGE

REMALINE 40 MAINTENANCE PRO - The perfect way to reliable production planning

REMALINE 40 MAINTENANCE PRO - A combination of high tensile strength natural rubber with a wear indicator built into the sheet for easy and safe inspection, putting an end to premature, unplanned system downtime and unnecessary maintenance costs. Applications of use include areas that are hard to access and inspect, lining of drains, pipes, hydrocyclones, flotation cells, tanks and flexilo/bunker lining. Orange wear layer with black signal layer provides safe protection against wear and material build-up



REMALINE MP 40

REMALINE 40 OIL - The oil and grease resistant universal lining

REMALINE 40 OIL/CN has been designed for a variety of wet or dry applications in which oil or grease might be involved. Highly elastic with good self-cleaning ability provides safe protection against wear and material build-up, especially in wet applications.



REMALINE 40 OIL

REMALINE 40 WHITE FOOD - The universal food safe lining for many applications

REMALINE 40 WHITE FOOD has been designed for a variety of wet or dry applications. It fulfills the FDA regulation no 21 CFR 177.2600 requirements for food contact and can be safely applied in any system with hygiene requirements. Highly elastic, self-cleaning capability provides safe protection against wear and material build-up, especially from wet abrasion.

Required adhesive system for food contact: CEMENT SC 4000 White/HARDENER E-40 or CEMENT C320/HARDENER UTR-20.



REMALINE 40 WHITE FOOD

REMALINE 50 - Highly Tear-Resistant Lining

REMALINE 50 is a natural rubber compound that is highly tear resistant and offers excellent protection in wet and dry abrasive applications due to its unique characteristics. Thanks to its great elasticity and high tear resistance, it is especially useful for lining pipes, chutes and tanks in power plants and gravel quarries. REMALINE 50 protects against wet, sharp-edged material, eliminates material build-up and increases the efficiency of your equipment.



REMALINE 50

REMALINE 60 - The lining for protection from impact wear

Due to high abrasion resistance, REMALINE 60 excels at protecting against impact and dry wear caused by dry, sharp edged material. REMALINE 60 is commonly used in coal handling and other dry, bulk material applications. It can be vulcanized to non-driven pulleys to increase the friction coefficient and improve conveyor performance.

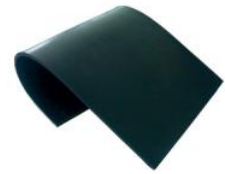


REMALINE 60

RUBBER LINING MATERIALS

REMAFINE 70 - Premium Rubber Lining Material

REMAFINE 70 is the optimum wear protection solution for extreme loads and a premium abrasion resistance. Due to the perfectly matched technical values, REMAFINE 70 provides an excellent tensile strength, and an improved tear growth resistance. Improved physical properties ensure material transfers and system components that see significant wear and impact problems are better protected, increasing equipment life and reducing down time. REMAFINE 70 offers excellent abrasion resistance, good weather resistance and outstanding elongation at break.



REMAFINE 70

URETHANE LININGS

REMATHAN G 65/CN - High quality polyurethane lining material for dry applications

REMATHAN provides high resistance to wear, oil and grease. REMATHAN resists hydrolysis and microbes while preventing material build-up, caking and bridging. Resists cut and abrasion caused by shrap stone/ore.



REMATHAN G 65/CN

REMATHAN G 75/CN - High quality polyurethane lining material for dry applications

REMATHAN provides high resistance to wear, oil and grease. REMATHAN resists hydrolysis and microbes while preventing material build-up, caking and bridging. Resists cut and abrasion caused by shrap stone/ore.



REMATHAN G 75/CN

REMATHAN G 90/CN - High quality polyurethane lining material for wet applications

REMATHAN provides high resistance to wear, oil and grease. REMATHAN resists hydrolysis and microbes while preventing material build-up, caking and bridging. Provides high impact elasticity.



REMATHAN G 90/CN

PTFE LININGS

REMAFLON - The solution for extreme material flow problems

REMAFLON is a combination of polytetrafluorethylene (PTFE = Teflon®) and rubber. It features especially slippery surfaces, thereby preventing extreme build-up and material flow problems. REMAFLON ensures perfect protection in most applications where dust or very fine and slightly moist material prone to buildup has to be conveyed. In particular, the virgin PTFE surface of REMAFLON features outstanding anti-adhesive properties, which make the surface even more slippery. Provides flow improvement of very fine and powdery, non-abrasive materials, noise dampening and very good chemical resistance. Teflon surfaces are approved for contact with food.

Required adhesive system for food contact: CEMENT SC 4000 White/HARDENER E-40 or CEMENT C-320/HARDENER UTR-20



REMAFLON

UHMW-PE LININGS

REMALEN - The special solution for any material flow problem

REMALEN has a 1/32" UHMW-PE transparent top layer that provides the optimum protection from build-up, bridging and wear. REMALEN prevents flow problems with very fine and powdery, non-abrasive materials by reducing build-up to a minimum, resulting in an increase in equipment productivity.



REMALEN

MOLDED RUBBER AND CERAMIC LININGS

REMALOX

REMALOX is a composite construction of high wear-resistant 92 %-Al₂O₃ ceramic tiles (square, rectangular or hexagonal "SW") vulcanized in special rubber with a CN bonding layer. REMALOX is ideal for simple to medium duty applications in mining, gravel, sand and stone breaking mills and other industrial sectors. It protects against extreme wear caused by abrasion at high speeds, increasing service life and reduces operating costs. CN Bonding layer provides fast, long lasting adhesion.



REMALOX-HD

Our high-quality REMALOX HD plates offer you optimum impact and wear protection for the most intense applications. With an extremely long service life, your plant can continue to operate with less downtime, saving you time and money. For medium to heavy duty applications in mining, quarries, sand and gravel plants and other mining industry applications.

REMALOX HD is a combination of high wear-resistant 92 % Al₂O₃ ceramic tiles hot-vulcanized in special rubber on a 5 mm steel backing plate S235 (St-37), which allows secure fixing by stud welding. Alternating hour glass edge tiles prevent cracking at the weakest point (see image to the right).

REMALOX HD rubber base absorbs impact energies while ceramic tiles provide a high degree of abrasion resistance. Ideal as a lining against extreme wear caused by impact and abrasion at high speeds or low impact angles.

Available in 3 different thicknesses - 1 3/8", 2", 3" (35 mm, 55 mm, 75 mm).



IMPACT AND WEAR PLATES & BARS

KG Bars

KG Bars with REMALINE 70 offer safe protection against abrasion and impact energies with large-size bulk material. Fastening profile is vulcanized into the rubber bar, offering easy, fast secure fastening with TT-fastening unit. For medium to heavy duty applications with abrasion at high speeds. Also available in V quality (self-extinguishing).



ZP Bars

ZP Bars with REMALINE 70 are ideal for applications with unfavorable angles of impact with large-size bulk materials. Excellent resistance against wear in dry conditions. Profile enables compensation of unfavorable impact angles of 10°-50°. Fastening profiles are vulcanized into rubber bar, offering easy, fast secure fastening with TT-fastening unit.



IMPACT AND WEAR PLATES & BARS

Serrated Profile Plates

Serrated Profile Plates ZP with **REMALINE 70** offer excellent resistance against wear in dry conditions and absorb impact energy. Profile compensates for unfavorable impact angles (for rubber 10°-50°), providing safe protection against abrasion and impact energies with large-size bulk materials. Vulcanized to S235 (ST-37) metal backing, it allows easy, flexible and fast installation. Long service life and easy replacement reduce operating costs and increase efficiency of equipment.



IMPACT AND WEAR PLATES & BARS

HDL Plates (Heavy Duty Lining)

Highly wear resistant **REMALINE 70** hot vulcanized on 5 mm S235 (St-37) split metal backing. Fastening holes in a given distance already properly drilled. The vulcanized metal backing enables an easy fitting on the application areas and prevents dust and material spillage.

REMALINE 70 protects against abrasion and impact energies of large-size bulk materials. Offers good resistance to weather while reducing noise and vibration. Long service life and easy replacement reduces operating costs and increases efficiency of equipment. Also available without holes.



REMA MODULAR SYSTEM - RMS

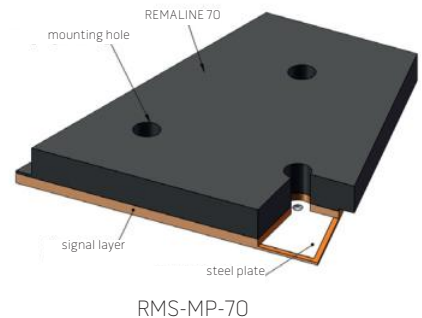
RMS are trapezoidal shaped modules that interconnect with one standard outer dimension for interchangeability. Available in three different materials to meet various needs and reduce installation expenses.

RMS-MP-70

RMS-MP-70 modules are constructed using high wear resistant **REMALINE 70** with **REMALINE 40 Orange** as a signal layer, vulcanized on a 5 mm metal backing S235 (ST-37).

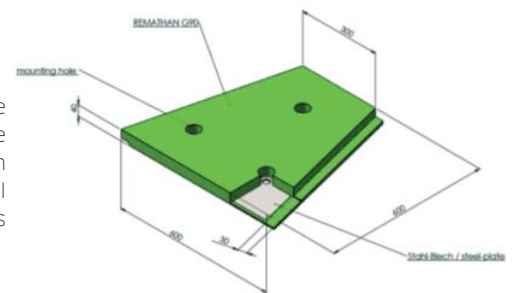
RMS-MP-70 panels are available in multiple thicknesses. Thickness of the **REMALINE 40 Orange** signal layer depends on the total thickness of the **RMS-MP-70** module. Mounting holes are already inserted at the specified locations. The vulcanized metal backing plate prevents fine material from settling under the lining and allows for secure fastening.

REMALINE 70 offers protection against impact from dry, sharp-edged material. The tongue and groove system prevents fines from intruding between the modules and improves the total armor stability. Trapezoidal shape reduces wear at the seam and prevents washout at the joints. Modules are easy to install and can be individually replaced.



RMS-REMATHAN-G90

RMS-REMATHAN-G90 modules are constructed of high wear-resistant polyurethane grade **REMATHAN G90** mounted on a 5 mm steel support plate S235 (ST-37). Mounting holes are already inserted at the specified locations. The steel support plate prevents fine material from settling under the lining and allows for secure attachment. **REMATHAN** is highly wear resistant, oil and grease resistant and has a high tear resistance. It's also resistant to microbes and hydrolysis applicable from -22°F to +176°F.



RMS-REMALOX-HD

RMS-REMALOX-HD modules are made of high wear-resistant 92% Al2O3 ceramic tiles vulcanized in a special rubber matrix. A 5 mm steel plate S235 (ST-37) is hot vulcanized to the back. The vulcanized steel support plate allows secure attachment via welding studs. **REMALOX-HD** panels provide extremely high abrasion resistance, especially from high speed material. Ideal for areas with small impact angles.



REMA TIP TOP Product & Solutions

CONVEYING SOLUTIONS

Pulley Lagging

- PERFORMANCE GRIP 70
- REMAGRIP
- REMAGRIP Ceramic Lagging
- UNIGRIP
- UNILAG
- T-REX

Belt Cleaners

- REMACLEAN - T-Bar Scrapers
- REMACLEAN - Green Combi
- REMACLEAN - Grey Combi
- REMACLEAN - Cleaning Brush

Skirting

- REMASKIRT
- Combi-Skirt
- T-REX
- UNISKIRT

Repair Products

- Repair Patches
- Repair Strips
- REMA GOO
- RG 7000
- T2 Repair System

Other

- Conveyor Belting
- REMACLEAT
- Edge Wall
- Impact Slider Bed Bars
- REMAMILL
- REMASCREEN

Rollers & Pulleys

- REMASLEEVE
- REMAROLL
- REMATRACK

WEAR & CORROSION PROTECTION

Wear Protection Lining

- REMA Performance Line
- REMALINE
- REMASTAR
- UNILINE
- REMATHAN
- T-REX

Rubber Linings

- CHEMOLINE
- CHEMONIT

Heavy Wear Protection

- REMALOX
- REMALOX HD
- KG Bars
- ZP Profile Bars
- REMA WEAR Repair

Anticaking

- REMAFLOX
- REMALEN
- REMASLIDE

Corrosion Coatings & Linings

- COROFLAKE
- COROGARD
- COROFLOOR
- TOPLINE
- RCC LININGS
- COROFLEX

Material Handling Hose

- Fixed Flange
- Split or Swivel Flange
- Cut End Hose

ADHESIVES & SOLUTIONS

Cements & Adhesives

- SC 2000 Black / White
- SC 4000 Black / White
- BC 3004 Blue Cement
- PC-4 Plastic Cement

Solutions

- PR 200 Metal Primer
- #13 Cleaning Solvent
- R50 Cleaning Solvent
- TIP TOP Hand Cleaner
- A&B Vulc Compound

Splice Kits

- Hot Splice Kits
- MSHA Splice Kits
- WK Press and Splice Material
- Filler Rubber
- CN Bonding Rubber

TOOLS & REPAIR

Tools

- Rubber Cut Saw
- Extruder Gun
- Vulcanizing Presses
- Combi Stripper
- Grooving Tool

Other

- REMAWRAP Pipe Repair
- OTR Tire Patches



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