

ROAD TAPE



Permanent Crack Repair Tape for Public Roads



HANSEOK ROADTAPE Co., Ltd. **Division of Overall Business Management**

HS Industry Development

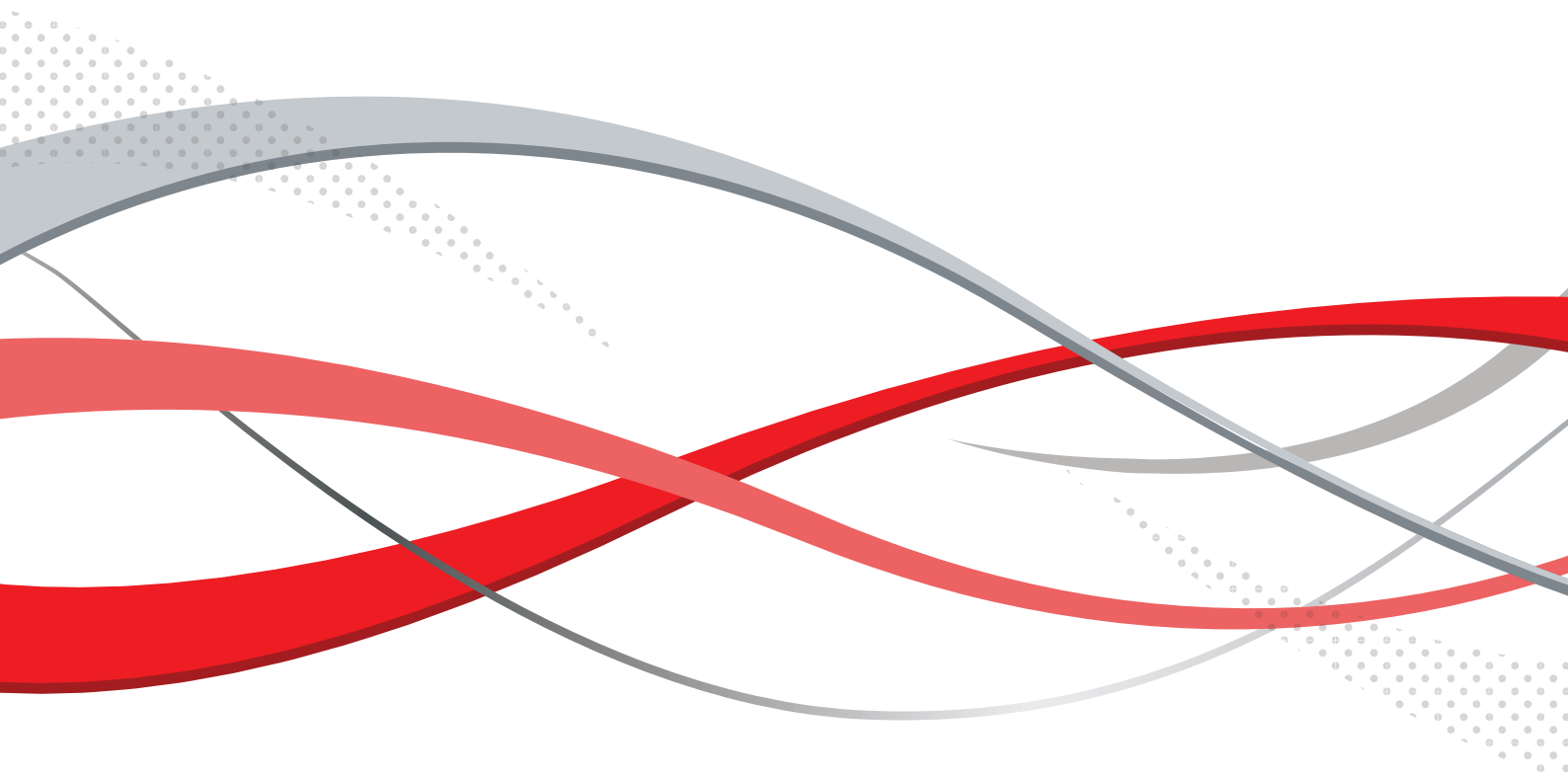
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The background of the entire page is a high-resolution, close-up photograph of a dark asphalt road surface. Several bright yellow strips of tape are applied to the road, following the paths of cracks. One strip runs diagonally from the top left towards the center. Another strip runs diagonally from the top right towards the bottom right. A third strip is positioned horizontally in the lower left area. The texture of the asphalt is clearly visible, showing small pebbles and some wear. The yellow tape appears to be a thick, adhesive material used for road repair.

Permanent Crack Repair Tape for Public Roads
Peel-&-Apply Technology

ROAD TAPE



Message from the CEO

Hanseok Roadtape is proud to present our new road maintenance product – Road Tape – the world's first permanent tape FIX for road cracks.

Our company began when a group of expert individuals experienced in road engineering, production management and business development got together in the firm belief that Road Tape will revolutionize the road maintenance industry.

Our rapid development of patented technologies has been positively acclaimed by governments and companies throughout the world including South Korea, China and the USA. We know that there is still more to be done and pledge to continue pouring our best efforts to develop these technologies further.

Our promise to our customers is simple. We will do our utmost to perfectly cater to your specific job and only provide you with quality goods every time. You will not be disappointed.

Thank you.

ROAD TAPE OVERVIEW



Quick, Easy & Permanent FIX for road cracks in the form of a self-adhesive tape.

Road Tape is a self-adhesive tape used to extend the life of roads by repairing surface cracks quickly and permanently. It is suitable for all types of roads including asphalt roads and concrete roads as well as parking lots and concrete floors.

The product is made with three distinct layers: the base layer is made of butyl rubber and asphalt – a patented compound with incredible adhesive properties and great tolerance to high and low temperatures; the surface layer is made of long fiber or P.P. fabric which has fantastic wear-resistance; and the final layer is a silicon release layer that preserves the product perfectly until it is applied onto the road.

Applications of Road Tape include repairing pavement and road cracks (including public roads subject to heavy traffic conditions), repairing cracks and destroyed parts of bridges, repairing concrete floor cracks in factories and other buildings, repairing cracks on airport runways or parking lots and repairing layer cracks occurring before overlay work or reconstruction work on roads. It is also suitable for all edge sealing or waterproofing work on roads or buildings.

Advantages of using Road Tape include faster work completion, a low worker skill requirement and a smaller margin of error, no down time after application (roads can be used the moment the tape has been applied), no requirement for specialized machinery or heavy equipment and excellent adhesion in both hot and cold temperatures so there is no impediment to repair work during winter and summer.

Road Tape will save you money, time and complex procedures with complex equipment. Just apply it like a Band-Aid to permanently repair your cracks.



PATENTS & CERTIFICATIONS

Patent no.10-0598609 Patent no.10-0605003 Patent no.0545236 Patent no.10-0701847 Patent no.10-1274101 Patent no.10-1274101 Patent no.10-1374845



Registration no.0383834 Registration no.0383835 Registration no.0388789 Registration no.0392334 Test Report Test Report



PRODUCT DELIVERY HISTORY

Public Offices	고양시 Jayu-ro	한국도로공사 Hongcheon Branch	현대산업개발 Hyundai Development Company
평택시 Pyeongtaek City Hall	통일엔지니어링 Tong Il Engineering Consultants Co., Ltd.	한국도로공사 Wonju Branch	서해건설 Seohai Construction Corp. Munjeong-dong, Eastern Branch Office
오산시 Osan City Hall	한국가스공사 Korea Gas Corporation	방위합병병원 Bundang Armed Forces Combined Hospital	Schools
원주시 Wonju City Hall	한국교통연구원 The Korea Transport Institute	양주합병병원 Yangju Armed Forces Combined Hospital	한밭대학교 Hanbat National University
의왕시 Euiwang City Hall	KICT Korea Institute of Civil Engineering and Building Technology	파주 OO군단 Paju OO Military Unit	서울시립대학교 University of Seoul
부천시 Ojeong District Office	대구시설공단 Daegu Infrastructure Corporation	Construction Companies	인천가톨릭대학교 Incheon Catholic University
부천시 Sosa District Office	남원시건설관리청 Namwon Regional Construction Management Administration	SAMSUNG Samsung C&T	Others
부천시 Wonmi District Office	순천시건설관리청 Suncheon Regional Construction Management Administration	우미건설(주) Woomi Construction Corp.	아도니스컨트리클럽 Adonis Country Club
부천시 Eunha Village	전주시건설관리청 Jeonju Regional Construction Management Administration	GS건설 GS E&C	한국전력공사 Korea Electric Traffic, Co.,Ltd.
고양시 Ilsan Western District Office	한국도로공사 Jaechon Branch	Halla Halla Corporation	
고양시 Deokyang District Office	한국도로공사 Goryeong Branch	현대건설 Hyundai Engineering & Construction	

CHARACTERISTICS & USES

Characteristics of Road Tape

- Technologically advanced material for road-repairing that will save you time and money.
- Simple Peel-&-Apply method that anyone can do without significant training.
- No need to use specialized machinery and heavy devices. All that is required to completely install the product is a heavy roller.
- Extremely quick installation and no down time. Overlay work can commence immediately or the roads can be used immediately once installation is complete.
- Minimal human resource consumption. One or two people can complete the installation job on their own.
- Crack-resistance and self-repair characteristics based on the strong adhesion and durability of butyl rubber.
- Natural resistance against both fatigue cracks and contraction/expansion cracks.
- Reinforcing mesh ensures excellent structural integrity under the passage of vehicles.
- Adhesion improves over time and crack fillings become more complete as the product naturally conforms to the crack's contours making the tape more wear-resistant.

Uses of Road Tape

- Repairing cracks on the surface of general roads, expressways, side streets, and bridges.
- Repairing cracks on the surface of parking lots, airport runways, terminals, etc.
- Repairing existing pavement when carrying out overlay work (prevents secondary cracks from forming).
- Repairing and protecting lamp sensors and cables under cracked asphalt.
- Repairing cracks in building structures such as rooftops, etc.
- Strengthening joints in architectural structures such as buildings, bridges, etc.
- Edge sealing and waterproofing on buildings, objects, etc.

TYPES & SPECIFICATIONS

3 Kinds of Road Tape :

Classification based on the width of the product

In the form of a black tape, used as a permanent repair for road cracks

- Road Tape B-200 : Width 100mm x Thickness 1.8mm x Length 20M
- Road Tape B-250 : Width 150mm x Thickness 1.8mm x Length 20M
- Road Tape B-300 : Width 300mm x Thickness 1.8mm x Length 20M

3 Kinds of Tape Seal :

Classification based on the shape of the product

As a solid filling material, used as a supplementary filler for deep cracks before applying Road Tape.

- Tale Seal #20/20 : Width 20mm x Thickness 2.0mm x Length 10M

Test Report of Road Tape

Test Method

(1)KSF4917:2007

(2)KSF4911:2012

(3)ASTMD4833:2000

(4)KST1028:2009

(5)KSMISO1519:2012(Client Suggestion)

Report No : CT15-120085

Test Results : Road Tape B-200

Test Period : 11/13/2015 – 12/1/2015

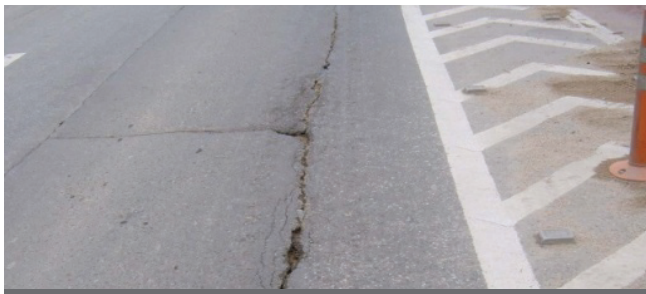
Measurement	Thickness			1.8 ± 0.2
Test Items	Unit	Test Method	Test Result	Note
Sealing Performance-Sealing Strength -Non-treatment-Length	N/mm	(1)	19.7	(20 ± 2) °C (65 ± 20) % R.H.
Sealing Performance-Increase Rate -Non-treatment-Length	%	(1)	95	(20 ± 2) °C (65 ± 20) % R.H.
Tearing Performance-Length	N	(1)	177	(20 ± 2) °C (65 ± 20) % R.H.
Heating Flexibility Characteristics- Flexibility Amount-Length	mm	(2)	-1.0	(20 ± 2) °C (65 ± 20) % R.H.
Penetration Strength	N	(3)	285	(20 ± 2) °C (65 ± 20) % R.H.
Viscosity	N/10mm	(4)	26.28	(20 ± 2) °C (65 ± 20) % R.H.
Curve Test	—	(5)	No crack or peeling	(20 ± 2) °C (65 ± 20) % R.H.

* Sealing Performance-Increase Rate is a value measured when breaking the entire layer of the sample (strengthening material and self-adhesive rubber layer).

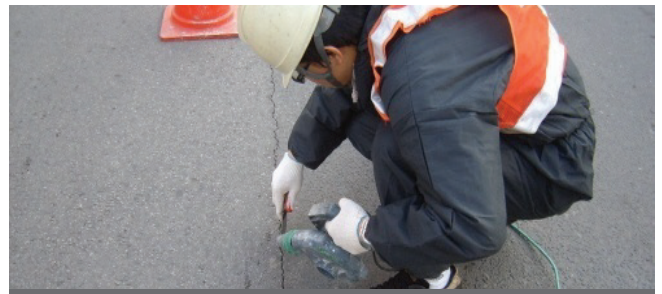
* Curve Test is a result of bending a test sample that has been frozen at -20°C by hand with a 10mm steel bar at 180° for 2 seconds.

* Heating Flexibility Test-Flexibility Amount-Length Test is subject to 80°C for 168 hours.

ORDER & METHOD OF CONSTRUCTION



1. Road Crack



2. Cleaning



3. Application of Primer



4. Tape Seal Work



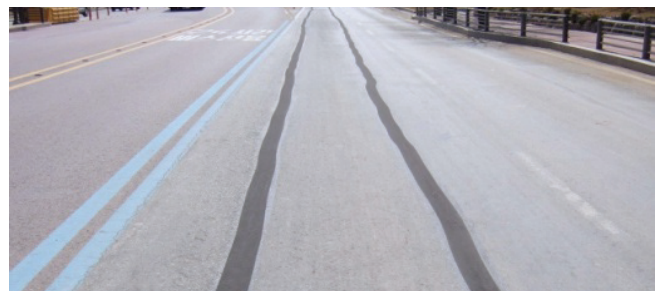
5. Tape Seal Work



6. Application of Road Tape



7. Compression



8. Completed Road Tape repairs

POST-CONSTRUCTION PHOTOES



Front of the Wonmi District Office Sports Complex



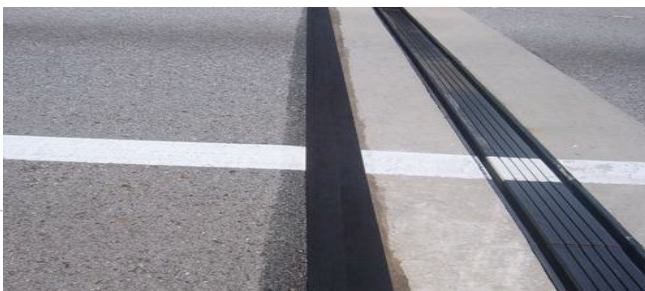
Gangseo Business Establishment



Ojeong-daero



Nambu Business Establishment



Sanju Highway



Educational Broadcasting System (overlying)



Purification Plant at the Ilsan Environment-Friendly Business Establishment



Jayu-ro

MATERIAL SPECIFICATION

1. Purpose

Road Tape is used on cracks on asphalt or concrete roads as a permanent fix. It is suitable for fatigue cracks, contraction/expansion cracks and branching cracks.

2. Material

Product material specifications are as follows

2-1. Structure of the Material

Upper layer : Product is made of a long fiber or P.P fabric that has an excellent wear/abrasion resistance, heat resistance and cold resistance.

Middle layer : Interlocked core mesh surrounded by a butyl rubber and asphalt compound. It has excellent adhesive properties, tear/cut resistance and some self-repair properties.

Bottom layer : A silicon release liner which should be removed at the time of application so that the product is in the best condition during installation.

2-2. Test and Standards of the Material

Products complies with all standards of material specifications based on the test criteria of KS F 4917, KS F 4911, KS A 1107, ASTM D4833, and KST1028.

2-3. Packaging and Condition of the Material

Road Tape (Width 10cm B-200 as a basis)

Item	Standard
Color	Black
Thickness(mm)	$1.8 \pm 0.2\text{mm}$
Standard	10cm(15,30cm)×20m/Roll
Weight	19kg (3Roll) Box

Tape Seal (Tape style #20/20 as a basis)

Item	Standard
Color	Black
Thickness(mm)	$2.0 \pm 0.2\text{mm}$
Standard	20mm×10m/Roll
Amount(Roll/Box)	20Roll / Box

3. Quality Management and Inspection of the Material

3-1. Quality management of the Material

Quality management of the materials must comply with the regulations of the manufacturer of the materials.

3-2. Storage Method for the Material

1. Products should be kept indoors and must be covered during transit to prevent rain or snow from penetrating before installation.
2. When storing the product, it must be stacked in no more than four layers.
3. Heavy or sharp items must not be placed on top of the products.
4. Products should be kept at least 5cm away from the floor to prevent accidental installation

3-3. Inspection of the Material

Products should be inspected upon acquisition. They must be inspected by a qualified inspector taking note that the correct manufacturer's name, product name, specifications, and the date of manufacture are displayed.

CONSTRUCTION SPECIFICATION

1. General Installation Instructions

1-1. Scope of Application

This specification is applicable to all constructions for repairing cracks on roads including fatigue cracks, contraction and expansion cracks and branching cracks.

1-2. Organization and Cleaning of the Work Site

- A. All materials at the construction site must be organized and arranged at all times to ensure a safe working environment. All construction workers should be equipped with the necessary safety equipment at the work site at all times.
- B. At the end of the day, the work site should be cleaned, safety equipment installed and directional signs erected before the work site is left unattended.
- C. The work site should be cleaned and directional signs erected when the work is temporarily stopped for any reason.

1-3. Removing Foreign Substances during the Work (Surface Treatment)

- A. Foreign substances must be removed from the construction area by using an air compressor or by other reasonable methods.
- B. When removing foreign substances, other substances should not be used, and water especially must not be used.
- C. When there is heavy humidity, construction must be carried out only after the humid area is completely air dried.

1-4. Strengthening of the Tape Seal

- A. If the width of the crack is greater than or equal to 0.5cm, Tape Seal should be applied to fill the crack before applying Road Tape.
- B. If desired, a torch lamp may be used to fill the crack fully and sufficiently.

1-5. Application of Primer

- A. Primer should be applied around the crack equal to 110% of the width of the Road Tape used to repair the crack.
- B. Road Tape must be applied only after the primer completely dries.

1-6. Construction of Road Tape

- A. To install the Road Tape, peel off the release silicon layer from the adhesive side and stick the road tape along the crack like a Band-Aid tape.
- B. Use a heavy roller to compress the Road Tape firmly onto the ground surface.
- C. If the adhesion is desired, use a compressor machine.

1-7. Reconstruction

- A. Incorrectly installed Road Tape will need to be cut and removed before carrying out reconstruction.
- B. Follow the above instructions to correctly install Road Tape onto the areas designated for reconstruction.

2. Special Instruction for Construction

2-1. Repairing small road cracks

- A. For a small cracks whose width is less than 0.5cm and the length is less than 5m, if it is judged by a qualified inspector that the condition of the road is fair, Road Tape may be constructed without the procedures of a tape seal and primer and it may sometimes also be enough to apply body weight to the tape instead of using a heavy roller.

2-2. Cases when primer need not be applied

- A. If it is judged by an inspector that the condition of the road is fair, Road Tape may be constructed without the application of primer after lightly heating the ascon (asphalt concrete) with a heating device.

2-3. Repair and Maintenance

- A. After installing Road Tape, its condition should be checked once a year. If a repair is needed, it is recommended that Road Tape is used to best support crack repair integrity.