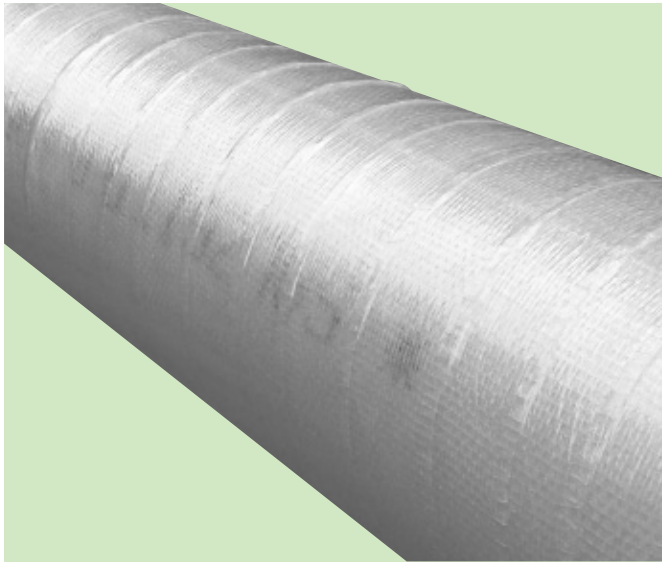


## Mechanical Pipeline Protection **4 pipes**:

- Fibercoat-UVcure
- Rock Shield Fleece
- PipecoatWatercure





## Mechanical Pipeline Protection

### Information

Fibercoat -UVcure is a glassfiber-reinforced composite material in third generation.

The roll material is delivered ready to apply and pre-impregnated with resin and cures with UV-light. Mixing and laminating on site is not necessary.

A handy roll size of 100 or 300mm width provides a simple and secure application.

A special GRP-system which was developed to fulfill the highest demands for trenchless traverse and characterizes with the following attributes:

- Glass-fiber woven texture bandage, no short fiber pieces, which have highest stability
- Thickness per layer is only  $0,70 \pm$  mm. Therefore the system is extremely flexible.
- The bandage is very translucent and allows the hardening up to 8mm coating thickness in one process
- Extreme impact strength and shearing resistance
- Ability for protection as well complete pipe line

### Pipeline Application

Typical application areas at pipeline building are mechanical protection at

- Trenchless pipeline laying, especially HDD
- ground-air changeovers
- pipe bearings, brackets and hangings

Standard roll dimension 100 mm x 15 m and 300 mm x 13 m, thickness each layer  $0,70 \pm$  mm.

Other roll-length and width on request.



Watch application video.



### Advantages

Because of the pre-impregnation of the system from factory side, an optimized protection of the environment is ensured. A common dripping of the resin does not appear like at classical laminations.

The system comes with all necessary accessory material which are special gloves, clear foil for pressing on the pipe surface, on request also UV-lamps etc.

### Technical data

Density ISO 1183	1,89 g/cm <sup>3</sup>
Tensile strength EN ISO 527-4	350 N/mm <sup>2</sup>
Bending strength EN 63	150 N/mm <sup>2</sup>
E-module EN 63	11000 N/mm <sup>2</sup>
Elongation at breaking EN 63	2,5 %
Compressive strength EN ISO 179	350 N/mm <sup>2</sup>
Impact strength ISO 178	110 KJ/m <sup>2</sup>
Glass fiber content EN 60	65 %
Volume shrinkage ISO 2577	2,5 %
Water absorption EN 62	0,11 mg/100h
Styrole emission ISO 178	< 20 ppm

Material data e.g. accord. a 2mm thick test plate.  
Tolerances possible.

Excellent resistance against chemicals (resistance table on request)



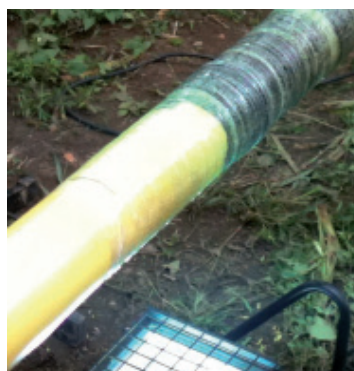
## Application manual

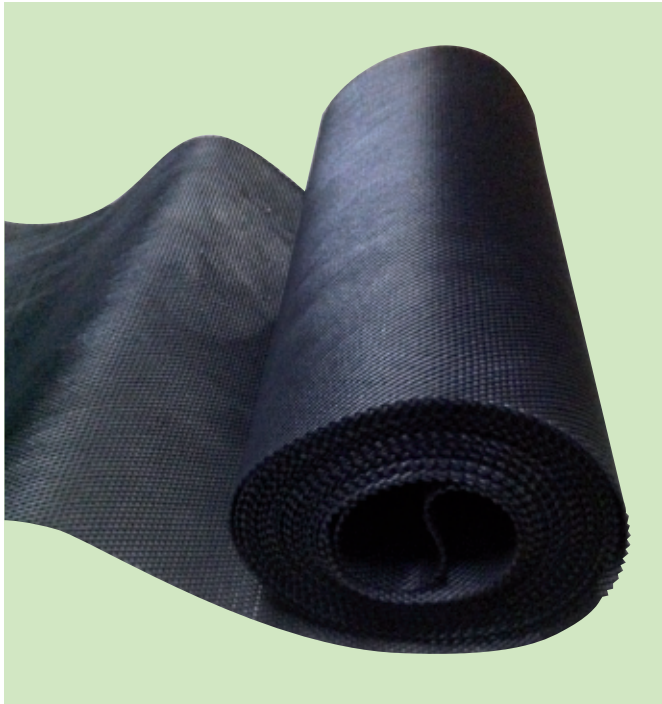
- Handling **not within closed rooms**
- **Clean, dry, degrease** pipe surface, roughen with sand paper (corn 40-50)
- **Apply in the shadow!**
- **Spiral wrapping** (3 to 10 layers)
- **Wrap tightly** and after that **overwrap with clear foil**
- While work interruption **secure transition zone from light** (e.g. with adhesive tape or provided separating foil) to collaring here later in not hardened material
- **Working time max. 5 minutes**, max. 10 minutes when cloudy
- **Protect necessarily against direct UV-light** with e.g. tent or parasol during application
- **Protect skin and eyes (with sunglasses) against UV-light! Do not work around lightened UV-spots!**
- Wrapping and hardening **up to 10 layers in one single process** is possible
- The **shadow side of pipe** should be hardened with a **UV-lamp**
- For coating of pipes and coating systems at trenchless traverse **consider valid DVGW-regulations**
- Optimum **processing temperature +5°C up to 25°C**
- **Prevent pollution of the material**, otherwise this would lead to hardening failures
- Application always accord. to **regional standard health and security regulations**
- Material must be **hardened fully** for extreme burdens (shore D 80°±)

**To coat pipeline parts** e.g. welded joints, the wrapping of the field coated areas should overlap ahead and **aback at least 200mm**. The wrapping must be applied **flat rising** to avoid blasting edge.

A guarantee for Fibercoat-UVcure 4 pipes is limited to substitute faulty material only.

**The ability of the material for any application must be considered at your own responsibility.**





## Product description

Rockshield net 4pipes protects pipelines and cables against mechanical forces safe and easy.

Where a sandbed is not possible or a special additional mechanical protection is necessary, the high quality Rockshield net 4pipes finds its application. Pipelines under rivers or projects in steep mountain applications or in areas with a lot of digging activities are only a few extra examples for the perfect usability of the Rockshield net 4pipes.

Multilayer foamed and crosswise welded PE-strips give high stability and impact strength to the product. The material is 100% recyclable.

Thanks to the criss-cross-net structure, the Rockshield net is suitable for use on cathodic protected pipelines without any problems.

The material is UV-stabilised and suitable for aboveground usage.

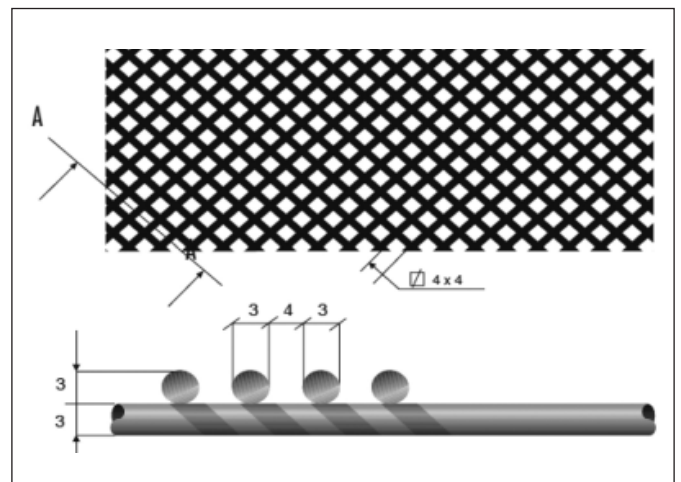
High flexibility and a very easy application make the system user friendly.



## Application

Rockshield net 4pipes is just wrapped around the pipeline. The overlap can be welded with a soft propane flame or fixed with self adhesive tape.

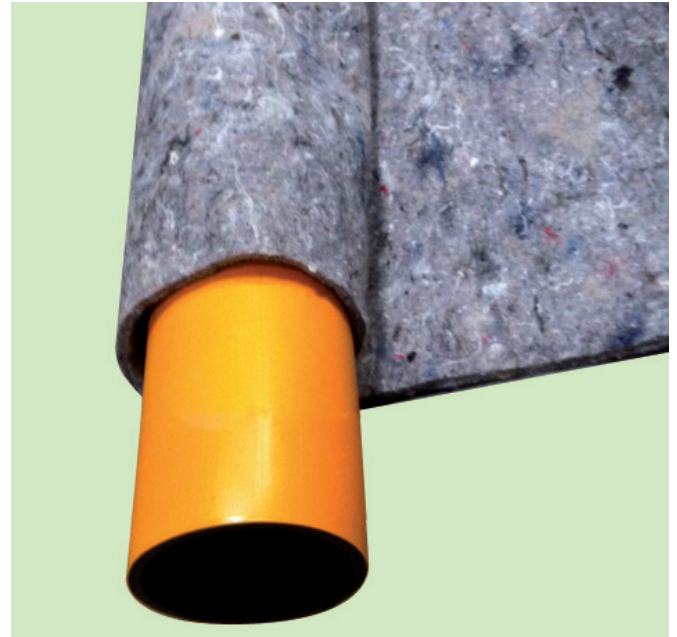
Rockshield net 4pipes can also be applied between Pipes or cables or on top of them to protect these mechanically. The material can easily be cut if necessary and handled on site.



## Technical Data:

Thickness	6 mm +-1
Colour	black
Width	1 meter standard
Length	20 meter roll
Material	PE expanded
Mesh width	4 mm +-1





## Application

- High quality mechanical pipe protection
- Alternative for sand bedding e.g. on a slope
- On top of corrosion protection coatings e.g. petrolatum tapes
- Separation between pipe and ground when pipes are moving
- Separation of gravel and ground of site bypasses
- Base e.g. for tanks with foil coverage

## Installation

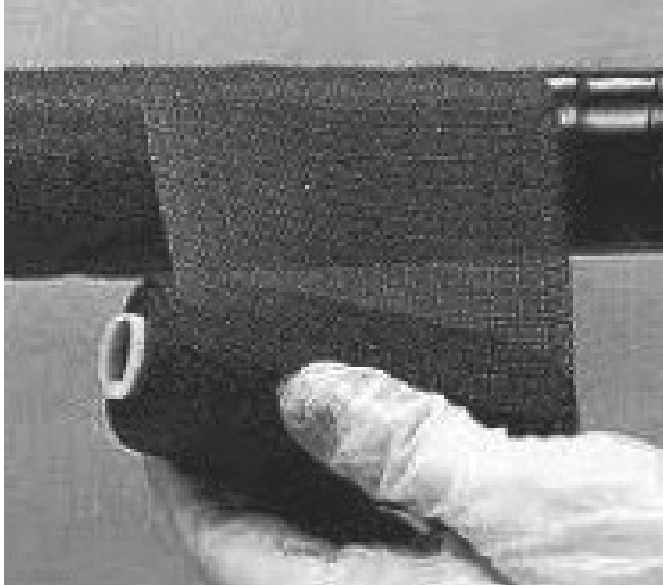
With adhesive tape or welding with soft propane gas flame.

## Technical data

Color	colorful
Material	polypropylene/PES
Weight per m <sup>2</sup>	1.000g/m <sup>2</sup>
Thickness	8,5 mm ±
Impact strength	5.000N ±
Chemical resistance	well
Permeable to water	suitable for cathodic protection
Needle compressed	
Size standard	1 x 25m
Special Size	0,5 up to 4,0 m
Tolerance	± 10 %



## GRP water-curing on sites Premium mechanical protection



### Product information

PipecoatWatercure is a **glass-reinforced composite material** accord. to the latest state of the art. The material comes **ready to mount pre-laminated** with resin on a roll and **cures with water**. A **mixing or laminating on the site is not necessary**. The roll which comes in an airtight bag has to be dipped into **water for about 10 seconds**. **Mounting is easy and secure** because of the **handy size of the roll with 97 mm width**.

A special for pipelines developed GRB-system fulfills highest standards and is **characterized by the following features**:

- **Woven** glasfiber-bandage (no short fiber pieces) guarantees **highest stability**
- Thickness per layer is only 0,75mm  
**Therefore the system is extremely flexible**
- The bandage allows the **curing up to 20mm layer thickness** in one process.
- **Extreme shock and shear resistance**
- Especially suitable for **protection of welded joints**
- **Fast curing** and full capacity after about 25 min.
- Application **also under water possible**

### Usage

Typical **applications at pipeline constructions are the mechanical protection on**

- **trenchless technologies**, especially HDD, on welded joints (for complete pipe coatings please use FibercoatUVcure)
- **ground-air-passage**
- **under pipe bracket clamp and hangers**
- use as **casing spacer at smaller annular spaces**

### Advantages

**An optimum protection of the environment** is warranted because of the factory **pre-laminated**. Dripping like with other classical resin **laminations does not occur**.

The system comes with all necessary accessories like eg. special gloves.

### Consumption table per joint – Experience values without like any guarantee

DN 80 (88,9 mm) approx. 2 rolls
DN 100 (114,3 mm) approx. 2 rolls
DN 150 (168,3 mm) approx. 3 rolls
DN 200 (219,1 mm) approx. 3 rolls
DN 250 (273,0 mm) approx. 4 rolls
DN 300 (323,9 mm) approx. 5 rolls
DN 400 (406,4 mm) approx. 6 rolls

**Roll dimension 97 mm x 4,57 m**

### Mounting instruction

- **Clean pipe surface, dry, degrease**, roughen with emery (corn 40-50)
- Dip **into water for approx. 10 sec.**
- Wrap of the PipecoatWatercure-tape with **minimum 1 x 75 % overlap (4 layers)**
- Wrapping **up to 20 layers is possible**
- Curing time approx. 20-30 min. at 23°C, **fully resilient after 60 min.**
- Wrap tightly and overwrap with clear foil or **adhesive tape**
- **Time of processing max. 2-3 min.**, depending on temperature
- For coating of pipes and corrosion-protection-systems at trenchless **the valid DVGW-rules have to be considered**
- A **processing temperature +5°C up to 25°C** is ideal
- Treatment always under the regional standards for security and health
- The material **must be fully cured for an extreme load**

**For a partly coating, e.g. welded joints** the wrapping should overlap the protecting area **in front and back in minimum 200 mm and the wrapping shall be applied flat upwards** to avoid an attack edge.

A guarantee for PipecoatWatercure 4pipes is only limited to the substitute of faulty material

**The suitability of the material has to be self-dependent deliberated for the respective application by the user.**