

EXOLINE® PROTECTOR SG-55

Waterproofing and frost-resistant concrete admixture



TECHNICAL DATA SHEET

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MANUFACTURER:

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EU AUTHORISED REPRESENTATIVE:

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BASIC PRODUCT DATA:

Customs tariff code: 3824 40 00

Standard: EN 934-2 – Admixtures for concrete and mortar

Pack sizes: 25 kg, 500 kg, 1000 kg

Shelf life: 36 months

1. PRODUCT DESCRIPTION

Exoline® Protector SG-55 is a **hydrophobic, pore-blocking concrete admixture based on ExoBase™ technology** which serves to increase the watertightness, durability and chemical resistance of cement-based concretes. The admixture reduces the capillary water absorption of the concrete and limits the penetration of moisture and of ammoniacal, acidic and alkaline media into the concrete. The micron-sized components of the admixture are distributed within the pore system of the cement matrix and, through their hydrophobic effect, reduce capillary water movement and the transport of liquids and ions through the pores. By favourably modifying the pore structure it contributes to the protection of the reinforcing steel against corrosion and increases the durability and service life of reinforced concrete structures.

Exoline® Protector SG-55 is intended primarily for industrial and structural concretes, particularly for structures where watertightness, mechanical resistance and long-term durability are key requirements. It can be used for exterior and interior concrete structures, industrial floors and in the construction or refurbishment of load-bearing concrete layers. With a suitable concrete mix design it makes it possible to create high-strength, watertight and abrasion-resistant concrete surfaces.

2. PRODUCT IDENTIFICATION

Product name	Exoline® Protector SG-55
Product type	Hydrophobic concrete admixture
Format	Powder-form dry concrete mix (one-component)
Customs tariff code (HS)	3824 40 00
Harmonised standard	EN 934-2 – Concrete admixtures MSZ EN 206:2013+A2:2021 - Concrete
EAN	5060421890159

3. TECHNICAL DATA (MSZ EN 206:2013+A2:2021)

Physical state	Powder (dry concrete mix)
Colour	Grey
Components	One-component
Fire class	A1
Dosage	5 - 7 % by weight of cement, depending on the fine-particle content of the concrete and on the required watertightness.
Mixing	Homogenised with the dry components in a concrete mixer

4. TECHNICAL DATA FOR CONCRETE PRODUCED WITH THE ADMIXTURE

The technical performance of the finished CONCRETE depends on the mix design used, on the raw materials and on the site conditions.

Capillary water absorption (W)	0.1 kg/(m ² ·min ^{0.5})
Vapour diffusion resistance factor	$\mu > 80 - 120$ For concrete produced with the admixture
Air content	≈ 4 - 6 vol%
Water penetration	Depth of water penetration: 10 - 15 mm Requirement of class XV3(H): ≤ 20 mm (MSZ 4798:2016)
Frost resistance	XF4 - EN 206
Min. layer thickness	≥ 50 mm
Material consumption	≈ 20 - 24 kg/m ² /cm depending on the composition and compactness of the concrete
Working time	≈ 40 minutes (20 °C)
Mixing	Low-speed concrete mixer, max. 600 rpm, min. 5 minutes

5. COMPOSITION AND DECLARATION

Exoline® Protector SG-55 is a **hydrophobic, pore-blocking concrete admixture based on ExoBase™ technology** which serves to increase the watertightness and durability of cement-based concrete mixes. **The main active component of the product is: ExoBase™ hydrophobic active agent** - for densifying the pore structure of the concrete and reducing water absorption.

Exoline® Protector SG-55 contains no asbestos, formaldehyde, VOC or other volatile organic solvents. The product is **REACH compliant**, non-radioactive and, in set concrete, **not hazardous to the environment**. The hardened material becomes part of the concrete structure and, in accordance with local regulations, **may be handled as normal construction waste**.

6. MAIN FIELDS OF APPLICATION - INDUSTRIAL AND INFRASTRUCTURE PROJECTS

Exoline® Protector SG-55 concrete admixture is particularly suitable for reinforced concrete structures where **watertightness, durability and chemical resistance** are key requirements.

It can be used, among others, for:

- Bridges and bridge piers
- Tunnels and civil engineering structures
- Reservoirs and hydraulic engineering structures
- Ports, docks and quay walls
- Underground and multi-storey car parks
- Industrial floors and heavily loaded concrete surfaces
- Sewer systems and wastewater treatment facilities
- Foundation slabs and reinforced load-bearing structures
- Cast-in-situ reinforced concrete structures
- Precast concrete elements

Note: Using the admixture results in concrete with **reduced water absorption and a more durable, more resistant structure** against aggressive environmental effects.

CONCRETE MIXING (INDUSTRIAL APPLICATION)

Exoline® Protector SG-55 concrete admixture can be used:

- In the production of ready-mixed concrete
- In the production of precast concrete elements
- In industrial concrete batching plants
- For concreting cast-in-situ reinforced concrete structures
- For producing industrial floors and heavy-duty concrete surfaces
- For creating watertight concrete structures
- For concreting infrastructure and engineering structures, for example
 - Bridges and bridge piers
 - Tunnels and civil engineering structures
 - Ports and hydraulic engineering structures
 - Reservoirs and sewer systems
 - Heavily loaded industrial and traffic concrete surfaces

KEY BENEFITS

- **ExoBase™ technology** – hydrophobic and pore-blocking effect
- **Reduced capillary water absorption** in the pore system of the concrete
- **Improved watertightness** and resistance to moisture
- Contributes to the **protection of the reinforcing steel against corrosion**
- Increases the **durability and service life of reinforced concrete structures**
- Makes the concrete more resistant to **ammoniacal, acidic and alkaline media**
- Suitable for **heavy-duty industrial and infrastructure concretes**
- Compatible with most **cement-based concrete mix designs**

7. SURFACE PREPARATION AND APPLICATION

DOSAGE (AS A FUNCTION OF FINE-PARTICLE CONTENT)

The dosage of **Exoline® Protector SG-55** must always be matched to the **fine-particle content of the concrete**. The product can be used with any **aggregate with a particle fraction starting from 0** (e.g. 0/16, 0/22 or 0/32 mm gravel).

Note: The values given are **reference values** determined on the basis of the **MSZ EN 206:2013+A2:2021** and **EN 934-2 (Concrete admixtures)** standards and of the manufacturer's tests. Actual values may vary from batch to batch within the quality-control **tolerance limits**. Salt and crystallisation resistance (**ASTM C88**), as well as acid and alkali resistance, are verified by the manufacturer's tests.

CONCRETE GRADE	FINE PARTICLE DISTRIBUTION	COARSER PARTICLE DISTRIBUTION
C8/10 - C16/20	~ 8-9 kg	~ 5-6 kg
C20/25 - C25/30	~ 6-8 kg	~ 4-6 kg
C30/37 - C35/45+	~ 5-6 kg	~ 3-4 kg
Special concretes	Based on individual laboratory validation	Based on individual laboratory validation

REFERENCE CONCRETE MIX DESIGN (1 M³ OF FINISHED CONCRETE)

Concrete class	Cement (kg)	Gravel 0/16-0/22 (kg)	Water (litres)	w/c	Exoline® Protector SG-55
C20/25	280-300	1800-1850	165-175	0.55-0.50	4 - 6 kg
C25/30	300-320	1780-1820	160-170	0.50-0.48	4 - 6 kg
C30/37	320-340	1760-1800	155-165	0.48-0.45	5 - 6 kg
C35/45	340-360	1740-1780	150-160	0.45-0.42	3 - 4 kg
C40/50	360-400	1700-1750	145-155	0.42-0.38	3 - 4 kg

Note: The dosage of **Exoline® Protector SG-55** must always be matched to the **0-4 mm fine-fraction content of the concrete**. The values given in the table are **reference values** and may be adjusted on the basis of the particle size distribution of the aggregate, the required watertightness and the concrete mix design.

TYPICAL EXPOSURE CLASSES (EN 206)

Exoline® Protector SG-55 can be used in concrete structures exposed to the various environmental exposure classes of **EN 206 / MSZ EN 206:2013+A2:2021**.

Typical exposure classes for application:

Exposure class	Environmental action
XC1 - XC4	corrosion induced by carbonation
XF1 - XF4	freeze-thaw attack
XA1 - XA2	moderate chemical attack
XD1 - XD3	chloride exposure (e.g. de-icing salt)
XS1 - XS3	chlorides from sea water

EXOLINE® RECOMMENDED CONCRETE MIX DESIGN

Exoline® Protector SG-55	Portland cement	Gravel
5 - 7 kg	350 kg	1800 - 1900 kg

After mixing: finished concrete volume: $\approx 1.0 \text{ m}^3$

Note: The mix design is a **reference value**; the actual concrete composition is determined by a concrete technologist according to the aggregate used, the cement type and the required concrete grade.

MIXING AND PLACING

Exoline® Protector SG-55 admixture must be homogenised with the cement or with the components of the dry concrete mix; the concrete is then produced and placed using standard concrete mixing and concreting technology. The admixture can be used in the production of ready-mixed concrete, in industrial batching plants, in the production of precast concrete elements and for on-site concrete mixing.

It can be used:

- In formed structures
- In industrial floors
- In reinforced structures
- In cast-in-situ concrete structures
- In precast concrete elements

The concrete may be placed:

- By pumping
- With vibration compaction
- By manual or mechanical spreading

Compaction must be carried out with **an internal or external vibrator** in accordance with standard concreting procedures.

AFTER-CARE

The concrete must be cured in accordance with the **MSZ EN 13670** and **MSZ EN 206** standards.

Recommended curing methods:

- Damp covering
- Water spraying
- Vapour-barrier film
- Application of a curing compound

At high temperatures: above +25 °C the fresh concrete must be kept damp for at least **3 - 5 days** to avoid too rapid drying and cracking.

9. HEALTH, SAFETY AND ENVIRONMENT

Product name	Exoline® Protector SG-55
CLP classification	Skin Irrit. 2 (H315), Eye Dam. 1 (H318)
Hazard statements	H315: Causes skin irritation H318: Causes serious eye damage
Precautionary statements	P260, P280, P305+P351+P338, P302+P352
VOC content	<1 g/l (in powder form: 0)
REACH compliance	Yes (Regulation (EC) No 1907/2006)
SDS availability	exoline@exoline.co.uk / manufacturer's safety data sheet

Exoline® Protector SG-55 contains cement. On contact with water, cement **forms an alkaline (pH > 12) medium** which may cause skin and eye irritation. The product has been classified in accordance with the **EU CLP Regulation (EC) No 1272/2008**.

MANDATORY PERSONAL PROTECTIVE EQUIPMENT (PPE)

- Protective gloves - nitrile or neoprene gloves to EN ISO 374
- Eye protection - closed safety goggles to EN 166
- Dust mask - FFP2 category (EN 149)

ENVIRONMENTAL REQUIREMENTS

- The hardened material is **non-hazardous waste** and may be handled as normal construction waste.
- Liquid residues **must not be discharged into drains or surface waters**.
- Waste code: **EWC 17 01 01 - concrete**.

10. STORAGE, TRANSPORT AND PACKAGING

Pack sizes	1.6 kg bucket / plastic bag
Storage conditions	In a dry place protected from the weather, between 5-35 °C
Shelf life	12 months in unopened packaging
Transport classification	Non-hazardous goods (for ADR/RID purposes)

11. EU CONFORMITY AND APPLICABLE STANDARDS

Relevant standards	EN 934-2 - Concrete admixtures MSZ EN 206:2013+A2:2021 - Concrete
REACH Regulation	Ensured in accordance with Regulation (EC) No 1907/2006.
CLP Regulation	(EC) No 1272/2008 - classification, packaging and labelling.
CPR	Construction Products Regulation (EU) No 305/2011.

CE marking: Exoline® Protector SG-55 concrete admixture is a construction product covered by **harmonised standard EN 934-2**. The product **may be placed on the market with CE marking**, for which a **Declaration of Performance (DoP)** must be issued under **CPR Regulation (EU) No 305/2011**.

12. LEGAL DISCLAIMER AND LIABILITY

This Technical Data Sheet is based on the current technical knowledge and experience of **Exoline Ltd**. The data are based on the results of laboratory and manufacturer's tests.

The performance of the product depends on:

- The concrete mix design used
- The raw materials
- The site conditions

Exoline Ltd. accepts no liability for damage resulting from improper use or from use deviating from the instructions. When using the product, the **local building regulations, standards and concrete technology requirements** must be observed. The manufacturer reserves the right to modify the technical data, the composition and the product specification without prior notice. Always refer to the **latest valid technical data sheet**.

The latest version is available at www.exoline.co.uk.

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