March 2001

Sika Frioplast® A1 – 5 Range

Water Reducing/Air Entraining Agents for Concrete

Technical Data Sheet

DESCRIPTION

Sika Frioplast A1 – 5 Range are air-entraining agents formulated from Lignosulphonate and Polyhydroxy carboxyilic acid. The constituents comply with the standard requirements of BS5075: Part 2.

Sika Frioplast A1 – 5 Range promotes the uniform distribution of microscopic air bubbles throughout the cement matrix. The bubbles are of even size and shape but are not connected.

ADVANTAGES

* **Sika Frioplast A1 – 5 Range** is manufactured by Sika Limited under strict control from carefully selected raw materials of consistent quality.
* **Sika Frioplast A1 – 5 Range** modifies the pore structure of the concrete giving it the following benefits:
  * Lower permeability than plain concrete
  * Bleeding of excess mix water is reduced and therefore:
  * the amount of laitance is reduced, enhancing the concrete's resistance to frost attack.
* **Sika Frioplast A1 – 5 Range** reduces the water demand of the concrete for a given workability.
* **Sika Frioplast A1 – 5 Range** increases the cohesion of concrete mixes, which makes them easier to handle and place. This includes concrete containing particularly harsh aggregates.
* **Sika Frioplast A1 – 5 Range** improves the durability of concrete exposed to freeze/thaw cycles due to the reservoir of pores deployed which allow the expansion of water without disruption to the concrete. This is of great value where concrete is exposed to tidal conditions, splash zones and de-icing salts.

Technical Data (typical)

Form:	Liquid
Colour:	Brown
Specific Gravity:	1.168
Air Entrainment:	Controlled
Chloride Content % w/w:	Less than 0.2% w/w
Effect on Setting:	Minimal
Freezing Point °C:	-1°C

All above values are approximate.

METHOD OF USE

Wet or Dry Batch Plants

The **Sika Frioplast A1 – 5 Range** is supplied ready for use and should be added to concrete with the mixing water. On no account should it be added to the dry cement.

DOSAGE

The addition rate of admixtures from the **Sika Frioplast A1 – 5 Range** will vary according to mix design, aggregate grading, ambient temperature, etc. As a guide, however, it will be between 0.10–0.40% by weight of cementitious content (0.05–0.20 litres per 50 Kg of cementitious). In conventional concrete this should lead to 4–6% of air being entrained.

COMPATIBILITY

Sika Admixtures:

The **Sika Frioplast A1 – 5 Range** can be used in conjunction with other concrete admixtures based on Lignosulphonate or Napthalene and Melamine Formaldehyde Superplasticisers.

Handling Precautions
Sika products are generally harmless provided that certain precautions normally taken when handling chemicals are observed. The materials must not, for instance, be allowed to come in contact with foodstuffs or food utensils and measures should also be taken to prevent the uncured materials from coming in contact with the skin, since people with particularly sensitive skin may be affected. The use of protective clothing, goggles, barrier creams and rubber gloves is required. The skin should be thoroughly cleaned at the end of each working period either by washing with soap and warm water or by using a resin-removing cream - the use of powerful solvents is to be avoided. Disposable paper towels - not cloth towels - should be used to dry the skin. Adequate ventilation of the working area is recommended. In case of accidental eye or mouth contact, flush with water - consult a doctor immediately. Health and Safety information on Sika Products is available and we strongly advise that this is read prior to their use. Sika products are for professional use and should be stored in sealed containers away from the reach of children.

Important Note
The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the Technical Data Sheet for the product concerned, copies of which will be supplied on request.

Please consult our Technical Sales Department for further information

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August 2002

Sika® AER

Synthetic Air Entraining Agent for Concrete

Technical Data Sheet

DESCRIPTION

Sika AER is an air-entraining agent formulated from modified naturally occurring and synthetic surfactants complying with the standard requirements of Pr EN 934-2.

Sika AER promotes the uniform distribution of microscopic air bubbles throughout the cement matrix. The bubbles are of even size and shape but are not connected.

ADVANTAGES

Sika AER is manufactured by **Sika Limited** under strict control from carefully selected raw materials of consistent quality.

Sika AER modifies the pore structure of the concrete giving it the following benefits:

* Lower permeability than plain concrete.
* Bleeding of excess mix water is reduced, and therefore the amount of laitance is reduced, enhancing the concrete's resistance to frost attack.
* **Sika AER** reduces the water demand of the concrete for a given workability.
* **Sika AER** increases the cohesion of concrete. Mixes which make them easier to handle and place. This includes concrete containing particularly harsh aggregates.
* **Sika AER** improves the durability of concrete. Exposed to freeze/thaw cycles due to the reservoir of pores deployed which allow the expansion of water without disruption to the concrete. This is of great value where concrete is exposed to tidal conditions, splash zones and de-icing salts.

Technical Data (typical)

Form:	Liquid
Colour:	Clear/Opaque
Specific gravity:	1.01
Air entrainment:	Controlled
Dosage % by wt of cement:	0.05 - 0.15
Chloride content % w/w:	Nil
Freezing point °C:	-1°C

All above values are approximate.

METHOD OF USE
Wet or dry batch plants

Sika AER is supplied ready for use and should be added to concrete with the mixing water. On no account should it be added to the dry cement.

DOSAGE

The addition rate of **Sika AER** will vary according to mix design, aggregate grading, ambient temperature, etc. As a guide, however, it will be between 0.05-0.15% by weight of cementitious content (0.025 - 0.075 litres per 50 kg of cementitious).

In conventional concrete this should lead to 4%-6% of air being entrained.

COMPATIBILITY

Sika AER can be used in conjunction with other concrete admixtures based on Lignosulphonate or Naphthalene and Melamine Formaldehyde Superplasticisers.

IMPORTANT NOTE

Pulverised Fuel Ash is a waste product of modern electricity generation. Only use PFA complying with the relevant British Standard, BS3892:Part 1 in structural concrete. Such material will vary within the parameters laid down in the standard, eg carbon content, fineness and loss on ignition. As a result of this the admixture dosage will vary to maintain a specific air.

PACKAGING

Sika AER is supplied in 25 litre and 200 litre containers. Bulk deliveries can be arranged.

STORAGE AND SHELF LIFE

Sika AER should be stored in sealed containers between 5°C and 30°C and protected from frost. Under these conditions the shelf life is 1 year minimum.

Please consult our Technical Sales Department for further information

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January 2002

Sika® AER 50-50

Synthetic Air Entraining Agent for Concrete

Technical Data Sheet

DESCRIPTION

Sika AER 50-50 is an air-entraining agent formulated from modified naturally occurring and synthetic surfactants complying with the standard requirements of BS5075 Part 2 and Pr EN 934-2.

Sika AER 50-50 promotes the uniform distribution of microscopic air bubbles throughout the cement matrix. The bubbles are of even size and shape but are not connected.

ADVANTAGES

* **Sika AER 50-50** is manufactured by Sika Limited under strict control from carefully selected raw materials of consistent quality.
* **Sika AER 50-50** modifies the pore structure of the concrete giving it the following benefits:
  * Lower permeability than plain concrete
  * Bleeding of excess mix water is reduced and therefore:
  * the amount of laitance is reduced, enhancing the concrete's resistance to frost attack
* **Sika AER 50-50** reduces the water demand of the concrete for a given workability.
* **Sika AER 50-50** increases the cohesion of concrete mixes which make them easier to handle and place. This includes concrete containing particularly harsh aggregates.
* **Sika AER 50-50** improves the durability of concrete exposed to freeze/thaw cycles due to the reservoir of pores deployed which allow the expansion of water without disruption to the concrete. This is of great value where concrete is exposed to tidal conditions, splash zones and de-icing salts.

Technical Data (typical)

Form:	Liquid
Colour:	Brown
Specific Gravity:	1.01
Air Entrainment:	Controlled
Chloride Content % w/w:	Nil
Effect on Setting:	Minimal
Freezing Point °C:	-1°C

All above values are approximate.

METHOD OF USE

Wet or Dry Batch Plants

Sika AER 50-50 is supplied ready for use and should be added to concrete with the mixing water. On no account should it be added to the dry cement.

DOSAGE

The addition rate of **Sika AER 50-50** will vary according to mix design, aggregate grading, ambient temperature, etc. As a guide, however, it will be between 0.3–0.6% by weight of cementitious content (0.15–0.18 litres per 50 Kg of cementitious).

In conventional concrete this should lead to 4%–6% of air being entrained.

COMPATIBILITY

Sika AER 50-50 can be used in conjunction with other concrete admixtures based on Lignosulphonate or Napthalene and Melamine Formaldehyde Superplasticisers.

IMPORTANT NOTES

Pulverised Fuel Ash is a waste product of modern electricity generation. Only use FPA complying with the relevant British Standard, BS 2892 Part 1 in structural concrete. Such material will vary within the parameters laid down in the standard, eg carbon content, fineness and loss on ignition. As a result of this the admixture dosage will vary to maintain a specific air.

PACKAGING

Sika AER 50-50 is supplied in 25 litre and 200 litre containers. Bulk deliveries can be arranged.

STORAGE AND SHELF LIFE

Sika AER 50-50 should be stored in sealed containers between 5°C and 30°C and protected from frost. Under these conditions the shelf life is 1 year minimum.

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May 2001

Sika® AER 5

Synthetic Air Entraining Agent for Concrete

Technical Data Sheet

DESCRIPTION

Sika AER 5 is an air-entraining agent formulated from modified naturally occurring and synthetic surfactants complying with the standard requirements of BS5075:Part 2 and Pr EN 934-2.

Sika AER 5 promotes the uniform distribution of microscopic air bubbles throughout the cement matrix. The bubbles are of even size and shape but are not connected.

ADVANTAGES

* **Sika AER 5** is suitable for use in Continuous Mixing Plants.

* **Sika AER 5** is manufactured by **Sika Limited** under strict control from carefully selected raw materials of consistent quality.

* **Sika AER 5** modifies the pore structure of the concrete giving it the following benefits:

  - Lower permeability than plain concrete
  - Bleeding of excess mix water is reduced
  - The amount of laitance is reduced, enhancing the concrete's resistance to frost attack.

* **Sika AER 5** reduces the water demand of the concrete for a given workability.

* **Sika AER 5** increases the cohesion of concrete mixes which make them easier to handle and place. This includes concrete containing particularly harsh aggregates.

* **Sika AER 5** improves the durability of concrete exposed to freeze/thaw cycles due to the reservoir of pores deployed which allow the expansion of water without disruption to the concrete. This is of great value where concrete is exposed to tidal conditions, splash zones and de-icing salts.

Technical Data (typical)

Form:	Liquid
Colour:	Brown
Specific gravity:	1.03
Air entrainment:	Controlled
Dosage % by wt of cement:	0.10 - 0.40
Chloride content % w/w:	Nil
Freezing point °C:	-1°C

All above values are approximate.

METHOD OF USE
Wet or dry batch plants

Sika AER 5 is supplied ready for use and should be added to concrete with the mixing water. On no account should it be added to the dry cement.

DOSAGE

The addition rate of **Sika AER 5** will vary according to mix design, aggregate grading, ambient temperature, etc. As a guide, however, it will be between 0.10 - 0.40% by weight of cementitious content (0.05 - 0.20 litres per 50 kg of cementitious).

In conventional concrete this should lead to 4%-6% of air being entrained.

COMPATIBILITY

Sika AER 5 can be used in conjunction with other concrete admixtures based on Lignosulphonate or Naphthalene and Melamine Formaldehyde Superplasticisers.

SUITABILITY

Sika AER 5 is particularly suited for use with concrete having high content of cementitious material or containing a cementitious replacement such as Pulverised Fuel Ash or Ground Granulated Blast furnace Slag.

IMPORTANT NOTE

Pulverised Fuel Ash is a waste product of modern electricity generation. Only use PFA complying with the relevant British Standard, BS3892:Part 1 in structural concrete. Such material will vary within the parameters laid down in the standard, eg carbon content, fineness and loss on ignition. As a result of this the admixture dosage will vary to maintain a specific air. Site testing will have to be increased to ensure consistency of air entrainment.

PACKAGING

Sika AER 5 is supplied in 25 litre and 200 litre containers. Bulk deliveries can be arranged.

STORAGE AND SHELF LIFE

Sika AER 5 should be stored in sealed containers between 5°C and 30°C and protected from frost. Under these conditions the shelf life is 1 year minimum.

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October 2002

Sika® AER 46

Synthetic Air Entraining Agent for Concrete

Technical Data Sheet

DESCRIPTION

Sika AER 46 is an air-entraining agent formulated from modified naturally occurring and synthetic surfactants complying with the standard requirements of BS5075 Part 2 and Pr EN 934-2.

Sika AER 46 promotes the uniform distribution of microscopic air bubbles throughout the cement matrix. The bubbles are of even size and shape but are not connected.

ADVANTAGES

* **Sika AER 46** is manufactured by Sika Limited under strict control from carefully selected raw materials of consistent quality.
* **Sika AER 46** modifies the pore structure of the concrete giving it the following benefits:
  * Lower permeability than plain concrete
  * Bleeding of excess mix water is reduced and therefore:
  * the amount of laitance is reduced, enhancing the concrete's resistance to frost attack
* **Sika AER 46** reduces the water demand of the concrete for a given workability.
* **Sika AER 46** increases the cohesion of concrete mixes which make them easier to handle and place. This includes concrete containing particularly harsh aggregates.
* **Sika AER 46** improves the durability of concrete exposed to freeze/thaw cycles due to the reservoir of pores deployed which allow the expansion of water without disruption to the concrete. This is of great value where concrete is exposed to tidal conditions, splash zones and de-icing salts.

Technical Data (typical)

Form:	Liquid
Colour:	Brown
Specific Gravity:	1.01
Air Entrainment:	Controlled
Chloride Content % w/w:	Nil
Effect on Setting:	Minimal
Freezing Point °C:	-1°C

All above values are approximate.

METHOD OF USE

Wet or Dry Batch Plants

Sika AER 46 is supplied ready for use and should be added to concrete with the mixing water. On no account should it be added to the dry cement.

DOSAGE

The addition rate of **Sika AER 46** will vary according to mix design, aggregate grading, ambient temperature, etc. As a guide, however, it will be between 0.3–0.6% by weight of cementitious content (0.15–0.30 litres per 50 Kg of cementitious).

In conventional concrete this should lead to 4%–6% of air being entrained.

COMPATIBILITY

Sika AER 46 can be used in conjunction with other concrete admixtures based on Lignosulphonate or Napthalene and Melamine Formaldehyde Superplasticisers.

IMPORTANT NOTES

Pulverised Fuel Ash is a waste product of modern electricity generation. Only use FPA complying with the relevant British Standard, BS 2892 Part 1 in structural concrete. Such material will vary within the parameters laid down in the standard, eg carbon content, fineness and loss on ignition. As a result of this the admixture dosage will vary to maintain a specific air.

PACKAGING

Sika AER 46 is supplied in 25 litre and 200 litre containers. Bulk deliveries can be arranged.

STORAGE AND SHELF LIFE

Sika AER 46 should be stored in sealed containers between 5°C and 30°C and protected from frost. Under these conditions the shelf life is 1 year minimum.

Please consult our Technical Sales Department for further information

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