



Product Data

HEMPEL'S SHOPPRIMER ZS 15890

BASE 15899 with HEMPEL'S LIQUID 99751

Description: HEMPEL'S SHOPPRIMER ZS 15890 is a two-component, solvent-borne zinc ethyl silicate shopprimer, designed for automatic spray application. Especially suited, where welding (MIG/MAG) and gas-cutting properties are of importance.

Recommended use: For short to medium-term protection of abrasive blast cleaned steel plates and other structural steel during the storage, fabrication, and construction periods.

Certificates/Approvals: Approved as a welding primer by Lloyd's Register of Shipping, American Bureau of Shipping, Det Norske Veritas, Germanischer Lloyd, Korean Register of Shipping, Bureau Veritas, RINA, Italy and Maritime Register of Shipping, Russia.
See REMARKS overleaf.

Availability: Part of Group Assortment. Local availability subject to confirmation.

PHYSICAL CONSTANTS:

Colours/Shade nos:	Reddish grey/19890 - Grey/19840
Finish:	Flat
Volume solids, %:	28 ± 1
Theoretical spreading rate:	See REMARKS overleaf
Flash point:	22°C/72°F
Specific gravity:	1.3 kg/litre - 10.8 lbs/US gallon
Dry to handle:	4-5 minutes at 20°C/68°F
Fully cured:	3 days at 20°C/68°F (75% RH)
V.O.C.:	620 g/litre - 5.15 lbs/US gallon (According to EPA Fed Ref Method 24)

Shelf life: 1 year (25°C/77°F) from time of production.
Shelf life is dependent on storage temperature. Shelf life is reduced at storage temperatures above 25°C/77°F. Do not store above 40°C/104°F or below 5°C/40°F. Shelf life is exceeded if the liquid is gelled or if the mixed product forms gels before application.

The physical constants stated are nominal data according to the HEMPEL Group's approved formulas. They are subject to normal manufacturing tolerances and where stated, being standard deviation according to ISO 3534-1.

APPLICATION DETAILS:

Mixing ratio for 15890: Base 15899 : Liquid 99751
2 : 3 by volume

Application method:	Airless spray	Air spray	Brush (touch-up)
Thinner (max.vol.):	08570 or 08700 (30%)	08700 (30%)	08570 or 08700 (15%)

(See REMARKS overleaf)

Pot life: 24 hours (20°C/68°F) (Closed container, constant stirring) (See REMARKS overleaf)

Nozzle orifice: .019"-.023"

Nozzle pressure: 80 bar/1200 psi
(Airless spray data are indicative and subject to adjustment)

Cleaning of tools: THINNER 08570 or 08700

Indicated film thickness, dry: 15 micron/0.6 mil (See REMARKS overleaf)

Indicated film thickness, wet: Not relevant

Recoat interval, min: When fully cured

Recoat interval, max: None (See REMARKS overleaf)

Safety: Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.



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SURFACE PREPARATION:	Remove oil and grease with suitable detergent. Abrasive blasting to minimum Sa 2½ with a surface profile equivalent to Rugotest No. 3, min. N9a, Keane-Tator Comparator, 2 mils segments or ISO Comparator Medium (G,S). For special purposes grit blasting is necessary.
APPLICATION CONDITIONS:	The surface must be completely clean and dry with a temperature above the dew point to avoid condensation. Minimum steel temperature 0°C/32°F, max. approximately 55°C/131°F: Curing: Minimum temperature for curing 0°C/32°F, minimum 50%, preferably above 65% relative humidity. Consult separate APPLICATION INSTRUCTIONS.
SUBSEQUENT COAT:	As per specification.
REMARKS:	Certificates are issued under the former quality number 1589.
Ballast tanks:	For steel to be used for ballast tanks, IMO Resolution MSC.215(82) requires that the contamination with water soluble salts measured according to ISO 8502-9 must not exceed a conductivity equivalent to 50 mg/m ² sodium chloride. The dust quantity rating assessed according to ISO 8502-3 must not exceed rating "1" for dust size classes "3", "4" or "5".
Film thicknesses and theoretical spreading rates:	On steel abrasive blasted to a profile Ra = 12½ micron (½ mil), equivalent to Rugotest No. 3, N10a-b, or Keane-Tator Comparator, 3 mils segments, the indicated 15 micron/0.6 mil film thickness corresponds to approx. 25 micron/1 mil measured on a smooth test panel (see special instructions for this procedure). The corresponding "theoretical" spreading rate will be 11.2 m ² /litre (449 sq.ft./US gallon). On steel abrasive blasted to a profile Ra = 6.3 micron (1/4 mil), equivalent to Rugotest No. 3, N9a, or Keane-Tator Comparator, 2 mils segments, the indicated 15 micron/0.6 mil film thickness corresponds to approx. 20 micron/0.8 mil measured on a smooth test panel (see special instructions for this procedure). The corresponding "theoretical" spreading rate will be 14.0 m ² /litre (561 sq.ft./US gallon). The shopprimer should be applied in a uniform film thickness. Avoid dry spray and exaggerated film thicknesses.
Thinning:	Depending on requested protective lifetime the dry film thickness may be varied. Minimum is approximately 10 micron/0.4 mil, maximum 20 micron/0.8 mil as specified on a blasted surface. Selection of proper thinner is related to application conditions. At high temperatures, a special THINNER O8740 with a very slow flash-off may be used - please consult separate APPLICATION INSTRUCTIONS.
Curing:	Curing time is prolonged at relative humidity below 75%.
Recoating:	No maximum recoating interval for adhesion, but dictated by gradual breakdown and damage during exposure and fabrication. Regarding treatment before recoating, please consult the APPLICATION INSTRUCTIONS.
Shelf life:	If shelf life is exceeded, it is usually possible to use the zinc paste (BASE), if any settling can be remixed. The liquid may be used provided it shows no signs of turbidity, but pot life will be very much shortened, see below. In any case, possible surpassing of storage time will be of 1-2 months maximum (20°C/68°F) for the liquid.
Pot life:	The pot life may be gradually reduced to 8 hours (20°C/68°F) as the liquid approaches the end of its shelf life, assuming that it is stored under favourable conditions.
Note:	HEMPEL'S SHOPPRIMER ZS 15890 is for professional use only.
ISSUED BY:	HEMPEL A/S - 1589019890C00012

This Product Data Sheet supersedes those previously issued.

For explanations, definitions and scope, see "Explanatory Notes" in the HEMPEL Book.

Data, specifications, directions and recommendations given in this data sheet represent only test results or experience obtained under controlled or specially defined circumstances. Their accuracy, completeness or appropriateness under the actual conditions of any intended use of the Products herein must be determined exclusively by the Buyer and/or User.

The Products are supplied and all technical assistance is given subject to HEMPEL's GENERAL CONDITIONS OF SALES, DELIVERY AND SERVICE, unless otherwise expressly agreed in writing. The Manufacturer and Seller disclaim, and Buyer and/or User waive all claims involving, any liability, including but not limited to negligence, except as expressed in said GENERAL CONDITIONS for all results, injury or direct or consequential losses or damages arising from the use of the Products as recommended above. on the overleaf or otherwise.



Application Instructions

HEMPEL'S SHOPPRIMER ZS 15890

HEMPEL'S LIQUID 99751

Scope:

These Application Instructions cover surface preparation, application equipment, and application of HEMPEL'S SHOPPRIMER ZS 15890.

Surface preparation:

Note: For steel to be used for ballast tanks, IMO Resolution MSC.215(82) requires that the contamination with water soluble salts measured according to ISO 8502-9 must not exceed a conductivity equivalent to 50 mg/m² sodium chloride. The dust quantity rating assessed according to ISO 8502-3 must not exceed rating "1" for dust size classes "3", "4" or "5".

- a. Prior to abrasive blast cleaning of the steel, remove oil and grease and other contamination with a suitable detergent, followed by high pressure fresh water hosing.
- b. Abrasive blasting to Sa 2½, ISO 8501-1: 2007.
The abrasives must be capable of developing a surface profile equivalent to Rugotest No. 3, N9a to N10a (Ra = 6-12.5 micron/1/4-1/2 mil), Keane-Tator Surface Comparator, 2-3 mils segments (average maximum peak to valley roughness 50-75 micron/2-3 mils), or ISO Comparator, Medium (G,S).

Note: In case of abrasive blasting with shot instead of grit the resulting surface profile will give lower adhesive values and thereby reduced mechanical properties of the coating. Recoating with heavy-duty systems such as HEMPADUR qualities can then generally be recommended only after a very thorough abrasive grit sweeping. Also for recoating with zinc silicates such as GALVOSIL 15700 a thorough abrasive grit sweeping is mandatory to give the required surface profile.

- c. When the abrasive blasting is completed, remove all grit and dust by vacuum cleaning.

Note: As abrasive blasted surfaces will rust rapidly, HEMPEL'S SHOPPRIMER ZS 15890 must be applied immediately after the abrasive blasting and de-dusting. If re-rusting occurs, re-blasting is necessary.

Application equipment:

HEMPEL'S SHOPPRIMER ZS 15890 can be applied by conventional spray equipment (pressure pot type only), airless spray equipment and brush.

Conventional spray equipment:

Standard industrial spray equipment with mechanical agitator, pressure regulator, air filters, and water traps.

Pot pressure: 2.5-5 bar (35-75 psi)
Atomizing pressure: 1.5-2.5 bar (20-35 psi)
Air hose: 10 mm (3/8") internal diameter
Material hose: 13 mm (1/2") internal diameter

(Spray data are indicative and subject to adjustment).

Note: The hoses should be as short as possible, preferable not longer than 10 metres/35 feet. Place the pressure pot at the same level as or at a higher level than the spray gun when spraying, owing to the weight of the paint.

The pressure pot may advantageously be replaced by a piston pump with a low ratio of pressures.

In case of application stops, if possible re-circulate the paint through the hoses to avoid settling.

Clean all equipment promptly after use with the THINNER used.

Leave THINNER in the hoses when the equipment is not in use.

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Airless spray equipment:

A large, slow-working, piston pump is recommended.

Gaskets: Teflon
Nozzle orifice: .019" through .023"
Fan angle: 65° through 80°.
Nozzle pressure: 80 bar (1200 psi).

(Spray data are indicative and subject to adjustment).

Note: During application stops, if possible re-circulate the paint through the hoses to avoid settling.

Clean all equipment promptly after use with the THINNER used.

Leave THINNER in the hoses when the equipment is not in use.

Mixing:

- a. Do not open packing until immediately before use. The entire content of the two packing must be used for each batch to ensure a correct mixture. Left-overs in the packing cannot be used later.
- b. Before mixing, shake or stir the liquid very thoroughly.
- c. Mix only in the proportions supplied. Do not vary or sub-divide.
- d. Pour the liquid slowly into the zinc paste with constant mechanical stirring. Do not mix in the reverse order. Continue stirring until the mixture is free of lumps.
- e. Strain the mixture through a screen, 60-80 mesh (250-160 DIN Norm. 4188).
- f. For use in automatic shoppriming plants, adjust the mixture to a viscosity of 15-18 sec/DIN 4 or equal with the prescribed thinner.

Thinning:

Dilute the mixed product only.

For airless spray application, add maximum 30% of THINNER.

For conventional spray application, add maximum 30% of THINNER.

For touch up by brush, add maximum 15% of THINNER.

Note: THINNER 08570 has a very fast flash-off which makes it suitable at low temperatures but gives risk for dry-spray at high temperatures. THINNER 08570 is generally not recommended for conventional spray application.

THINNER 08700 has a relative slow flash-off with good film formation at high temperatures but slower drying at low temperatures.

If application takes place at high temperatures, ie 40-55°C/104-131°F, a special THINNER 08740 with even lower flash-off than THINNER 08700 should be used. Correct selection of thinner is dependent on the actual application conditions.

Pot life:

24 hours at 20°C/68°F in a tightly closed container.

Note: Prepare only the quantity that can be used within this period. Maintain constant agitation until the batch is depleted. After expiration of the pot life the mixture must not be used even if it may appear to be unchanged.

The pot life may be gradually reduced to 8 hours (20°C/68°F) as the liquid approaches the end of its shelf life, assuming that it is stored under favourable conditions.

Application:

The coating must be wet and smooth just after application. Avoid dry-spray and excessive film thicknesses, which especially may be encountered at manual spray application.

Micro climate:

Steel temperature: min 0°C/32°F, max. approximately 55°C/131°F.

Note: The temperature should be a few degrees above the dew point to avoid condensation. At the freezing point beware of ice on the surface.

For application beyond the stated intervals contact HEMPEL for guidance.



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Drying time: Dry to handle in 4-5 minutes at 20°C/68°F and sufficient ventilation in 15 micron/0.6 mil dry film thickness.

Note: These figures apply when the temperature of the steel does not differ appreciably from that of the surroundings.

Plates can be transported or stacked as soon as dry to handle.

Processing is only recommended when fully cured.

Curing time: Dependent on temperature and humidity.
Relative humidity: preferably min. 50% or higher
Min. temperature for curing is 0°C/32°F.
At 20°C/68°F and min. 75% relative humidity the coating will be fully cured in 3 days.

At low humidity, curing can be promoted by hosing down the surface with water 24 hours after application and by keeping the surface constantly wet until curing is complete.

Complete curing, in the sense of being ready for recoating, can be checked by rubbing the coating with a rag soaked in THINNER 08700 used. If the coating remains unaffected, the curing is complete.

Recoating interval: HEMPEL'S SHOPPRIMER ZS 15890 must be fully cured before recoating.

Recoating procedure: Remove oil and grease, dirt, etc. with suitable detergent followed by fresh water hosing. Remove weld spatters. Damaged areas, burns, etc. to be cleaned by rotary wire brushing, by disc grinding, by abrasive sweeping, or by abrasive blasting according to specification and touch up with the primer of the coating system proper. In case of "white rust" on intact surfaces, it is recommended to clean by fresh water hosing and scrubbing with stiff brushes.

It is risky to make a general cleaning of the exposed surface by grinding, and especially by wire-brushing as this process easily tends to give a smooth, polished surface to which the adhesion of following coats usually will be reduced.

In any case abrasive grit sweep the entire surface if the subsequent coat is GALVOSIL 15700 or similar, or if the shopprimer is polished (smooth) and the following paint system will be exposed to aggressive environments during service.

Especially if the paint system will be exposed to heavy wear - for instance a MULTI-STRENGTH-system - a very thorough abrasive grit sweeping is recommended, in severe cases a full reblasting.

Removal of dust is mandatory before recoating.

Safety: Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult HEMPEL Material Safety Data Sheets and follow all local or national safety regulations. Avoid inhalation, avoid contact with skin and eyes, and do not swallow. Take precautions against possible risks of fire or explosions as well as protection of the environment. Apply only in well ventilated areas.

ISSUED: HEMPEL A/S - 1589019890C0012

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Data, specifications, directions and recommendations given in this data sheet represent only test results or experience obtained under controlled or specially defined circumstances. Their accuracy, completeness or appropriateness under the actual conditions of any intended use of the Products herein must be determined exclusively by the Buyer and/or User.

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