SABA, a strong bond

System description SBS-3a: Bonding ship decks with SABA Deckfast MS

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1. Introduction

SABA offers a wide range of excellent products for bonding and sealing in the ship building industry. Refer to the general system description SBS-1 “Bonding and sealing on yachts”.

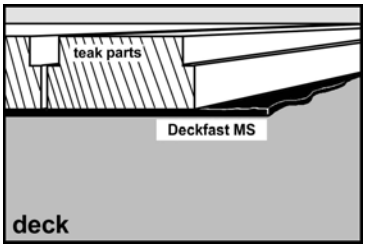
SABA Deckfast MS is a 1-component, MSP-based (Modified Silane Polymer), permanently elastic, spreadable mass for constructively bonding teakwood and plywood on ship decks. For further technical details and safety information, please refer to the Product Data Sheet and the Material Safety Data Sheet.

With SABA Deckfast MS you get a lasting bonding of the teakwood ship deck that is resistant to fresh water and sea water.

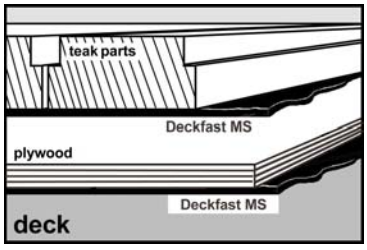
This system description explains the application of SABA Deckfast MS.

2. Drawing

The use of SABA Deckfast MS is illustrated in the drawings below:



Direct bonding of the teak parts onto the ship deck with SABA Deckfast MS.



Teak parts bonded on a levelling layer of plywood. Plywood and teak wood are both bonded with SABA Deckfast MS.

3. Application of SABA Deckfast MS

A. Preparation

- Make sure that the substrate and the wood are free from dust, grease, oil, corrosion and roll skin.
- Degrease the substrate thoroughly using SABA Cleaner 48. Make sure the Cleaner has completely evaporated (at least 15 minutes) before applying SABA Deckfast MS.
- If the substrate is coated, it is necessary to perform bonding tests prior to application.

B. Checking application conditions

- Measure the air temperature. Air temperature should be between 5 ^{0}C en 40 ^{0}C during application.
- Measure the temperature of the substrate. This temperature should be at least 3 °C above the dew point (the method for determining the dew point is explained in Appendix 3).
- Write down the measured values on the Work Sheet (Appendix 2).

C. Bonding with SABA Deckfast MS

- Apply SABA Deckfast MS onto the substrate and level the product with a spreader, resulting in an equally and fully filled layer of SABA Deckfast MS with a maximum thickness of 3 mm. It is important that the layer is fully filled to avoid water penetration from the bottom side into the teak wood deck.
- Apply the plywood or teak parts within 30 minutes after applying SABA Deckfast MS.
- It is important to have intensive contact between the deck, teak parts and SABA Deckfast MS during curing. There are several methods to accomplish this:
  - by mechanical bonding (screwing)
  - by equally stamping
  - by vacuum method

  In case of the last two methods, it is crucial that the force exercised is strong enough and is maintained during the entire curing period.
  The curing rate of SABA Deckfast MS is approximately 3 mm per 24 hours, depending on temperature and humidity.
- Leave SABA Deckfast MS to cure for at least one week (at 23 °C and 75% relative air humidity), before sealing it with SABA Sealer 211C or SABA Seal One HM. This is necessary to prevent the formation of bubbles in the sealant.

Appendix 1: Work Sheet Shipbuilding

A. Project data:

Work conducted by:

Date: ___/___/_____. Location:_____.

Project name:_____. Project nr:_____.

Previous sealing system (only applicable when replacing old seams):

☐ MSP ☐ Polysulphide ☐ PU ☐ Caulking ☐ Silicone ☐ Other

Work situation: ☐ open air ☐ conditioned (in door)

B. Products applied:

Product	Packing	Amount	Batch number(s)
SABA Bedding Compound ML			
SABA Deckfast MS			
Sabaplast 5503			
SABA Primer Marine			
SABA Sealer 211C			
SABA Seal One HM			
SABA Sealtack 780			
SABA Cleaner 48			
SABA Cleaner 21			

C. Measured Values Application Conditions:

Activity	Bonding	Priming	Sealing
Time			
Air Temperature (°C)			
Relative Air Humidity (%)			
Dew Point (°C) from table			
Temperature bonding surfaces (°C)			
Moisture Content bonding surfaces (%)			

D. Situation Sketch / Remarks:

Appendix 2: Measuring air temperature and air humidity prior to the application of primer or sealant (determination of dew point)

To ensure optimum bond between substrate and primer or sealant, it is necessary that air temperature, relative air humidity, temperature of the bonding surfaces and humidity content of the bonding surfaces are within certain limits.
Therefore several measurements have to be undertaken before application to ensure that application is technically safe.

The following measurements have to be carried out:
- Air temperature: should be between 5 °C and 40 °C during application
- Relative air humidity: should be between 50% and 90% during application
- Temperature of bonding surfaces: should be at least 3 °C above the dew point during application, see also Appendix 3
- Moisture content of bonding surface: should be below 15% during application. The bonding surfaces may be moist due to moisture in the wood, dew or precipitation.
- Moisture content of the wood: should be below 14 % during application.

Summarised:

	Minimum	Maximum
Air temperature	5 °C	40 °C
Relative air humidity	50 %	90 %
Temperature of bonding surface	dew point + 3 °C	-
Moisture content of bonding surface	-	15 %
Moisture content of the wood	-	14 %

The dew point is the temperature at which moisture in the air starts to condense. The resulting moisture on the bonding surfaces has a negative effect on the bonding of primer and sealant.
The dew point is determined by air temperature and relative air humidity and can be looked up in the table in Appendix 4.

During the application of SABA Bedding Compound ML, SABA Deckfast ML, Sabaplast 5503, SABA Primer Marine, SABA Sealer 211C or SABA Seal One HM, the temperature of the bonding surface has to be at least 3 °C above the dew point.

Registration of the measured values
We strongly advise to record the measurements on the Work Sheet (Appendix 2) and save this sheet for at least 5 years.

In the Work Sheet also the batch numbers of the products used are recorded, as well as other project information. The Work Sheet also contains a section to fit a sketch showing on what part of the deck the products were applied.

Appendix 3: Table for determining the dew point, using relative air humidity and air temperature.

From the table below you can observe the dew point on the crossing of relative air humidity and air temperature.

air-temp. (°C)	relative air humidity								
	50 %	55 %	60 %	65 %	70 %	75 %	80 %	85 %	90 %
5	- 4,1	- 2,9	- 1,8	- 0,9	0,0	0,9	1,8	2,7	3,6
6	- 3,2	- 2,1	- 1,0	- 0,1	0,9	1,8	2,8	3,7	4,5
7	- 2,4	- 1,3	- 0,2	0,8	1,8	2,8	3,7	4,6	5,5
8	- 1,6	- 0,4	0,8	1,8	2,8	3,8	4,7	5,6	6,5
9	- 0,8	0,4	1,7	2,7	3,8	4,7	5,7	6,6	7,5
10	0,1	1,3	2,6	3,7	4,7	5,7	6,7	7,6	8,4
11	1,0	2,3	3,5	4,6	5,6	6,7	7,6	8,6	9,4
12	1,9	3,2	4,5	5,6	6,6	7,7	8,6	9,6	10,4
13	2,8	4,2	5,4	6,6	7,6	8,6	9,6	10,6	11,4
14	3,7	5,1	6,4	7,5	8,6	9,6	10,6	11,5	12,4
15	4,7	6,1	7,3	8,5	9,5	10,6	11,5	12,5	13,4
16	5,6	7,0	8,3	9,5	10,5	11,6	12,5	13,5	14,4
17	6,5	7,9	9,2	10,4	11,5	12,5	13,5	14,5	15,3
18	7,4	8,8	10,2	11,4	12,4	13,5	14,5	15,4	16,3
19	8,3	9,7	11,1	12,3	13,4	14,5	15,5	16,4	17,3
20	9,3	10,7	12,0	13,3	14,4	15,4	16,4	17,4	18,3
21	10,2	11,6	12,9	14,2	15,3	16,4	17,4	18,4	19,3
22	11,1	12,5	13,8	15,2	16,3	17,4	18,4	19,4	20,3
23	12,0	13,5	14,8	16,1	17,2	18,4	19,4	20,3	21,3
24	12,9	14,4	15,7	17,0	18,2	19,3	20,3	21,3	22,3
25	13,8	15,3	16,7	17,9	19,1	20,3	21,3	22,3	23,2
26	14,8	16,2	17,6	18,8	20,1	21,2	22,3	23,3	24,2
27	15,7	17,2	18,6	19,8	21,1	22,2	23,2	24,3	25,2
28	16,6	18,1	19,5	20,8	22,0	23,2	24,2	25,2	26,2
29	17,5	19,1	20,5	21,7	22,9	24,1	25,2	26,2	27,2
30	18,4	20,0	21,4	22,7	23,9	25,1	26,2	27,2	28,2