MetaLine®
surface protection
Alfred Schramm molecular-technik GmbH & Co. KG

Important information!

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MetaLine® Serie 700 Cartridge Spray System

Application Leaflet

1. Requirements

For the application of MetaLine Serie 700 the **MetaLine Cartridge Spray Gun** is absolutely necessary. (Photo 1)


Photo 1

■ The accurate surface preparation as well as the precise material handling is essential for the product performance. Please read and understand this application leaflet and take care for all security advice given.

2. Surface Preparation

MetaLine Serie 700 shall only be applied to surfaces which are clean, degreased, dry and thoroughly **roughened**.

■ **Metal** - remove welding overlay. Grind down edges to a radius of minimum 3 mm. Sandblast surfaces to a minimum roughness of 75 my and a cleanness of SA 2 1/2 (Swedish Standard). Sharp contured grit (no beads) is required. Best particle size is 1.0 to 2.0 mm. All other surface treatments like grinding, etching, etc. do not achieve the same bond as sandblasting!

Surfaces which had been immersed or are contaminated with moisture, oil or chemical substances shall be treated as follows to receive **maximum adhesion**:

1. **Sandblasting** (pre-cleaning)
2. **Steam cleaning** (chlorine neutralisation)
3. **Flame treatment** (removal of moisture)
4. **Sandblasting** (roughening)
5. **Vacuum cleaning** (dust removal)
6. **Degreasing** (final cleaning)

■ **Rubber -** Polyurethane, rubber as well as plastic surfaces should be roughened using a slow rotating grinder. Take care not to overheat the surface.

■ **Old concrete** - paint and all kinds of surface coatings have to be removed. Oil and penetrated residues must be soaked off. Steam clean using a detergent. Flush with clear water to remove all residues. Dry to a maximum surface humidity of 3 %.

■ **New concrete** - let it cure for a minimum period of 28 days. Remove all surface contaminaints. Minimum coating thickness of MetaLine Serie 700 for all concrete coatings is 1.5 mm.

3. Cleaning/Degreasing

All roughened and prepared surfaces have to be cleaned with **MetaLine 990 Thinner**. Best way is to brush over (wash over) with a clean stiff brush soaked with MetaLine 990. Let it dry for at least 15 minutes. Non-roughened surfaces have to be cleaned several times with a clean, white rag soaked with MetaLine 990.

4. Priming

■ **Solid surfaces** - metal, alumina, polyamid, reinforced fiberglas, concrete, wood etc. must be treated with **MetaLine 900 Universal Grundierer**. Shake well both components prior to mixing. Mix 3 parts of MetaLine 900 Base and 1 part of MetaLine 900 Solidifier (**per weight**). Mix intensively and leave it for 5 minutes after mixing. Apply within 5 hours after mixing. Brush or spray apply in a single, thin coat. Coverage is close to 16 m^2 per kg. Let it dry for at least 1 h but not longer than 12 hours prior to the overcoating with MetaLine Serie 700.

Important: In case you want to spray apply **MetaLine 900 Universal Grundierer** use a gravitation feed gun with a maximum pressure of 1 - 1,5 bars and very little air. In case pressure or air stream volume is too high, MetaLine 900 dries too quickly and forms a white powder (snow like) on the surface. Watch out for this. This powder must be removed with **MetaLine 990 Thinner** prior the application of MetaLine Serie 700.

Never overprime MetaLine 900 with itself as it will not adhere very well. In case over-coating time has expired, blast again and restart surface preparation!

■ **Elastomeric surfaces** - Rubber, Polyurethane, PVC and all elastomeric materials have to be primed with **MetaLine 910 Gummi Grundierer**. Mix MetaLine 910 Gummi Grundierer 10 : 1 (Base to Solidifier) per weight. Apply within 5 hours after mixing. A stiff brush is recommended to work MetaLine 910 intensively into the surface using a rotating motion. Coverage is approx. 10 m^2/kg per coat.

After a minimum period of 1 hour but not longer than 12 hours, apply a second coat of MetaLine 910 Gummi Grundierer. Take care not to damage the first coat. Overcoat with MetaLine Serie 700 within 20 minutes. If the second coat of MetaLine 910 Gummi Grundierer is left to dry longer than 20 minutes it will lose its stickiness. In this case another coat of MetaLine 910 Gummi Grundierer has to be applied before it can be overcoated with MetaLine Serie 700.

■ **Plastic and other materials** - Please ask us for advice!

5. Cartridge Gun

Check all functions of the **MetaLine Cartridge Gun** first. Do NOT insert a cartridge for this testing. Connect gun to compressed air (pressure 5-7 bars, minimum air flow of 300 Liter per minute). Quality of air should be **oil-free** and dry.

Trigger: By pulling the trigger you start the pistons to move ahead and to empty the cartridges. (Photo 2)

Pull-Back-Buttom: If you push the Pull-Back-Buttom and pull the Trigger the same time, the pistons move back. Empty cartridges can be released. Do not try to move the pistons by hand to avoid an incorrect leveling of the two pistons. (Photo 3)

Regulator: At the end of the gun you can find the Regulator which controls the speed to empty the cartridges. Turning counter-clockwise reduces the speed, turning clockwise increases the speed. Without spraying experience you should chose a low speed as this eases the coating and spraying process. A good point to start is about 1 1/2 revolutions after minimum. (Photo 4)

Air-Valve: 90° Valve - in upright position the valve is closed. In a 9 o'clock position the valve is fully opened. If opened, air streams via the clear plastic hose to the Mi-xing- and Spray-nozzle. (Photo 5)

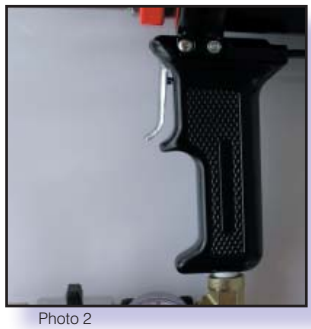
Photo 2


Photo 3

Photo 4


Photo 5

Air-Regulator: Depending on the cartridge temperature, ajust the air flow to achieve an uniform spray pattern. Try to use as little air as possible to minimize overspray. (Photo 6)

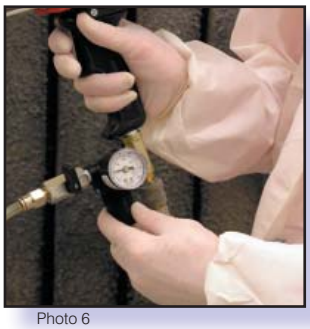
Photo 6

6. Preparation of Cartridges

MetaLine Serie 700 is designed as a **hot-spray-system**. Heat the closed cartridges in a microwave for about 3 minutes at 1.000 Watt. Use it immediately. Alternatively use an ofen and heat between 50 °C to maximum 70 °C. Do **NOT** apply higher temperatures (danger of leaking). After heating, turn the cartridges for 180° for about 20 times. This shall secure a homogenous dispersion of the heated material inside the cartridges. Take of the orange Transport Cap as well as the two black Cartridge Caps. (Photo 7)

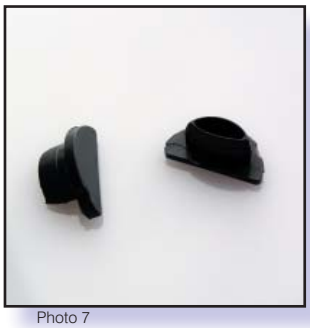
Photo 7

Place the black **Flow-Restrictor** on top of the cartridges in the way that the two little holes are placed on the cartridges openings. Fix the Mixing/Spray-nozzle on top and tight it very securely. (Photo 8)


Photo 8

7. Use of the Cartridge Gun

Immediately after the assembly of the cartridges place them into cartridge gun. The big cartridge goes onto the big piston and the smaller cartridge goes onto the smaller piston. (Photo 9) Press them slightly against the pistons to make them fit into the gun. Connect the air hose from the Air-Valve to the mixing nozzle. (Photo 10) Open the Air-Valve.

Hold the Gun in a **45° upright position**, pull the trigger and spray off material for about 5 seconds (NOT onto your part!). With this procedure you spray of air which might be in the cartridges and which could cause mistakes in the correct mixing ratio. Ajust the speed of your spray process with the **Regulator**. Keep the trigger pulled permanently and start your coating work. If the cartridges are close to be empty, stop the spray process. Due to technical reasons it is not possible to spray off 100 % of the content. If you try to, you might end in an incorrect mixing ratio and blistering of the coating!

We recommend **NOT to stop** the spray process until the cartridges are empty. If you have to stop for any reason and restart, spray off the whole content of the mixing nozzle (NOT onto your part) and continue with your coating work. If not, curing or adhesion problems might occur.

If you stop the coating process longer than for 1 minute, the material cures in the Mixing nozzle. In this case **replace** the Mixing/Spray-nozzle as well as the Flow-Restrictor.


Photo 9

8. Application

Spray onto the surface in several thinn passes until you have achieved the desired film thickness. The material starts to cure after 1 minute. On vertical surfaces you can apply a film thickness of about 0,5 mm per pass without running. If you completely close the Air-Valve, **liquid material** pours out of the nozzle. This can be used for smaller casting or injections jobs. Have in mind that the flow characteristic stops after 60 seonds.


Photo 10

9. Finish

Clean all tools with **MetaLine 990 Thinner** immediately after use. Take the cartridges out of the Gun. If the cartridges are not empty and should be reused, take off the Mixing/Spray-nozzle and the Flow-Restrictor and dispose it. Insert the black Caps into the cartridges.

10. Overcoating

If more than 30 minutes elapse between coats, repriming is necessary. Grind the cured surfaces (take care not to overheat). Apply one coat of **MetaLine 900 Universal Grundierer** as described under point „4“ of this application leaflet.

11. Curing

5 days (at 20 °C) are necessary for a **complete** chemical cure of MetaLine Serie 700. However, a light mechanical load can be applied after 24 hours. Higher temperatures will shorten the cure times. Do not apply temperatures higher than 50 °C during cure.

12. Working Conditions

Do not apply under the following conditions: Below 15 °C, over 80 % humidity, fog or near the dew point. Avoid direct sun-light as yellowing will take place. Cure between 15 and 50 °C. Never apply heat with an open flame.

Store the sealed material containers in a dry place at 20 °C. Avoid flames, moisture, ammonia or substances containing active hydrogen. Store the MetaLine Serie 700 cartridges **lying.**

13. Health and Safety

Take care when handling the uncured components. **Ventilate very well** during application and curing. Avoid contact with skin and eyes. Never breath fumes. Don't eat, drink or smoke when handling the uncured components. Use protective clothing, safety glasses and gloves. A suitable respiratory mask to avoid the breathing in of product fumes is a must. Never drain the materials.

Skin contact: Wash with fresh water and soap. Change and wash poluted clothing immediately.

Eye contact: Immediately flush with clear water for at least 15 minutes. Consult a physician.

Inhalation: Remove person to fresh air. In case of breathing problems supply fresh air. Consult a physician.

Ingestion: Never consume the product. Immediately consult a physician. Do not induce vomitting. Drink water to dilute.

Fire: Use CO2, Dry powder, foam. Fireproof clothing and fulface, air supplied respiratory mask is required.

- MetaLine 900 Base contains: Methyl-Ethyl-Ketone (MEK)
- MetaLine 900 Solidifier contains: MEK, 4,4-Methylene-Bisphenyl-Isocyanate
- MetaLine 910 Base contains: Trichlorethylene
- MetaLine 910 Solidifier contains: Polyisocyanate, Ethylacetate
- MetaLine 785 Base contains: 2,4-Toluene Diisocyanate (TDI)
- MetaLine 785 Solidifier contains: Polyoxylalkylenamine
- MetaLine 980 contains: Metyl-Ethyl-Ketone (MEK)
- MetaLine 990 contains: Methylenechloride (MCL)

14. Application Parameters

■ MetaLine 900 Universal Grundierer

Mixing ratio	3 : 1	per weight
Consumption	70 gr./m²	
Number of coats	1	
Working life	5 h	at 20 °C
Overcoating time	1 h	minimum
Overcoating time	12 h	maximum

■ MetaLine 910 Gummi Grundierer

Mixing ratio	10 : 1	per weight	
Consumption	100 gr./m²	per coat	
Number of coats	2		
Working life	5 h	at 20 °C	
Overcoating time	1 h	minimum	(of the first coat)
Overcoating time	12 h	maximum	(of the first coat)
Overcoating time	5 minutes	minimum	(of the second coat)
Overcoating time	20 minutes	maximum	(of the second coat)

■ MetaLine Serie 700

Working life	1 minute	at 60 °C
Consumption	1,2 kg/m²	s = 1,0 mm
Overcoating time	1 minute	minimum
Overcoating time	30 minutes	maximum
Cure time (at 20 °C)	1 day	light mechanical load
	5 days	full mechanical load
	10 days	full chemical load

All descriptions are based on the results of long term test and are believed to be true and acurate. No condition or warranty is given covering the results from the use of our products in any case wether the purpose is disclosed or not, and we cannot accept liability if the desired results are not obtained.