

Technical Data of ES 3-layer Series Coating

1. Introduction

1.1 Product features

- ◇ Suitable for workpiece of hard anodized cast aluminum.
- ◇ Excellent non-stickness, great abrasion resistance.

1.2 Main applications

The film obtained can be widely used for ordinary kitchen utensils and household appliance. For example, rice cookers, grills, microwave oven, irons and so on. The highest temperature for continuous use is 260°C.

1.3 Packaging unit

5kg, 18kg.

2. Physical properties

Item	Primer	Middle	Top	Comments
	ES-1909S-627L	ES-3709S-601L	ES-3798M-602L	
Appearance	Black Liquid	Black Liquid	Metallic White Liquid	Visual inspection
Solid content (mass%)	30.0~36.0	40.0~45.0	41.0~47.0	230°C×30min→380°C×30min
Viscosity (cP)	200.0~300.0	200.0~300.0	200.0~350.0	Rotating viscosimeter
pH	8.0~10.0	8.0~10.0	8.0~10.0	pH meter
Shelf life	6months	6months	6months	—

- ◆ Typical values, not specifications.

3. Processing technique

- ◇ **Please operate the whole process using clean compressed air in tidy environment, because the dusts in atmosphere and the oil and water in compressed air will result in small dots or rusty spots.**
- ◇ **Preheat the workpiece in proper conditions to avoid dewing when the workpiece is too cold or the humidity is too high.**
- ◇ **The temperatures mentioned below represent bulk temperature.**

3.1 Pretreatment of workpiece

3.1.1 Degreasing

Degrease the surface of workpiece using baking or degreasing solvent to clean oil and dusts.

- ◇ Baking workpiece 10min above 380°C is recommended and the specific conditions depend on workpiece and request of guests.

3.1.2 Surface roughening

Sandblast the surface to a consistent 2.0~3.5µm roughness (Ra value) using 60#~100# alumina sand emery in case of aluminum workpiece. Then clean the surface by air blow.

3.2 Pretreatment of coating

The coating must be dispersed at 30~50rpm for 30~50min, and filtered by filter screen of 100~200 mesh, 200 mesh is recommended for primer and middle coat, and 150 mesh for top coat.

- ◆ The coating must be sprayed immediately after thoroughly dispersion.

3.3 Preheating of the substrate material

It is necessary to preheat the substrate material at about 40°C before spraying.

3.4 Spray of primer

Spray ES-1909S-627L to a thickness of 13 ± 2 µm. Too thin film thickness will result in poor adhesion. Too thick film thickness will cause mud cracks. The atomizing pressure is 0.2~0.3Mpa when spraying.

3.5 Drying of primer

Dry the primer at 80~90°C for 10~15min as soon as possible after spraying. If drying is not enough, coated film may have poor corrosion resistance, bubbling or abnormal appearance.

3.6 Spray of middle coat

After the primer has been dried and cooled to 40~60°C, spray middle coat ES-3709S-601L to a thickness of 18 ± 2 µm.

3.7 Spray of top coat

After middle coat spraying, spray the top coat ES-3798M-602L immediately to a thickness of 13 ± 2 µm.

3.8 Drying and sintering of top coat

Dry the top coat at 80~120°C for 15~20min as soon as possible after spraying, then sintering at 380°C for 15~20min.

- ◆ Attention: Total dry film thickness should be controlled in 38~50µm.
- ◆ Attention: The temperature mentioned above is the temperature of the substrate.

4. Precautions in handling

4.1 Ordinary handling

- ◆ The working area should be adequately ventilated at all times. Local ventilation is necessary in the heating process (drying and sintering over 100°C), because the containing surfactants begin to be decomposed by heat higher than approximate 200°C.
- ◆ Maintain equipment regularly (cleaning and exchange) because the decomposed material will accumulate in oven or exhaust duct which is flammable.
- ◆ Put goggles and gloves for protection while handling.
- ◆ Smoking should be prohibited in working area, since smoking tobacco contaminated by fluoro polymer may result in inhalation of decomposed gas. Do not bring tobacco in the working area.
- ◆ Wash hands and face well after handling.
- ◆ Store in a cool and dry place (5~30°C). The case higher than 30°C must be avoided because coagulation and precipitation will occur. And avoid freezing under 5°C, this product cannot be used after being frozen.
- ◆ Roll the container once a week in order to keep product from coagulating.
Rolling condition: 30~50rpm×40min

4.2 Storing conditions

- ✧ Keep containers tightly sealed
- ✧ Keep away from direct sunlight.
- ✧ Be careful to avoid freezing during winter.

4.3 Disposal

Do not release coating into waste water systems. Place it in specially designated container for disposal. Add a coagulation agent (such as nitric acid) to separate the mixture into resin and water, and dispose of the resin portion only through a licensed industrial waste disposal company.

5. Handling emergencies

5.1 IF IN EYES: Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

5.2 IF ON SKIN: Wash with plenty of water and soap thoroughly. If skin irritation occurs: Get medical advice/attention.

5.3 If INHALATION (spray mist or gases from the sintering oven): Move the operator immediately to fresh air, and then seek medical advice.

6. Disclaimer

◆ The product is for the industrial use only. We do not guarantee the safety in case the product is used for the other purposes. When using the product for health-care application or food/feed contact application, consult us in advance. This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

◆ This data sheet contains the best and latest of our knowledge on the data of issue on laboratory testing and practical application experience, and subject to change without notice. Since the paints are used under unexpected circumstances in some cases, guarantee can not be given except on the quality of those paints themselves.