

JOHNSON GRANULATED PHOTOGRAPHIC EMULSIONS

FOR

P H O T O - L O F T I N G

AND A VARIETY OF OTHER INDUSTRIAL REPRODUCTION PROCESSES

By this process lengthy and difficult methods of transferring designs to metal or other material are entirely avoided. Master drawings are photographed directly on to the material for full scale layout reproduction. These exact reproductions can be repeated indefinitely and risk of error is eliminated.

The advantages of the use of photo-lofting will be evident to the Chief Draughtsman and those in charge of output. Production can be speeded up and any drawing office instructions appearing on the original drawing from which the negative is made are repeated on every piece of material each time the image is projected. When "one off" or a "few off" are required, the use of a template can be avoided,

JOHNSON EMULSION is supplied in the form of fine dry granules, quickly and easily prepared for use. They keep well in all climates - and need no storage by refrigeration.

THE ADVANTAGES OF THE USE OF JOHNSON PHOTOGRAPHIC GRANULATED EMULSION ARE:-

A variety of methods of application suitable for many materials in a wide range of sizes.

The absence of shrinkage giving a high degree of accuracy in the finished result.

The employment of operators who are not skilled photographers to sensitize the material to be used.

The ability to dispense with an undercoat or primer on wood, or on metals which can be anodised .  
Economy.

The safe and easy storage of the Emulsion in its dry granular state.

The following instructions cover the application of JOHNSON EMULSION to light alloys and mild steel, but it can also be applied to wood, glass paper, etc.

METHODS OF APPLICATION

Emulsion can be applied by means of:-

1. Spray Gun,
2. "V" Spreader.
3. Hand Coating (Flowing)
4. Brushing (painting with a good quality brush).
5. Coating by Centrifugal Force in a "whirler".

The application by spray gun is to be preferred for large surfaces but the other methods are all quite suitable for smaller jobs up to say about 3 feet by 2 feet.

LIGHT ALLOYS AND ALUMINIUM.

On metals which can be anodised, Emulsion can be applied direct after anodising without the need to apply a white cellulose undercoat (or primer).

MILD STEEL.

When mild steel is to be used for templates an undercoat or primer is necessary to give a smooth matt surface. Before applying primer to mild steel plates they should be cleaned free from rust, dirt and grease and should be primed on both sides. When possible the surface to be coated with emulsion should be sand blasted before being primed.

DIRECTIONS FOR THE USE OF JOHNSON GRANULATED EMULSION

The Emulsion is supplied in 8-oz. tins sufficient to prepare from 80-ozs to 120-ozs. of liquid for use according to the method of application. Each ½-oz. of Liquid Emulsion, when spraying is used, is sufficient to treat about one square foot.

Each 8-oz. tin contains sufficient granules to prepare the following quantities of Liquid Emulsion:

- a. For Spraying - 96 fluid ozs,
- b. For "V" Spreader - 80 fluid ozs.
- c. For Hand Coating or Whirling - 120 fluid ozs.
- d. For Brushing (painting) 80 fluid ozs.

Until the image has been developed and fixed, all the following operations must be carried out by photographic safelight, such as the Ilford 902S or the Kodak Series OB. To prevent any possibility of fogging, safelights should not contain bulbs brighter than 25 watts, and a safe working distance from the light to the job is from 6 to 8 feet.

1. PREPARATION OF EMULSION.

Place the contents of one tin in the required quantity of cold water according to method of application. This is done in a jar with a light tight lid. Occasional stirring with a glass rod is desirable during the time of soaking which should be at least 30 minutes. If possible, soaking should be extended to 60 minutes when circumstances permit.

The jar is then placed in hot water bath and the liquid emulsion raised to a temperature not exceeding 105°F. Strain through double thickness of undressed lint into another jar which has been warmed, and the liquid emulsion is now ready for use.

By the time a sufficient quantity of emulsion has been poured into the spray gun receiver or V spreader, it will be found that the temperature has dropped to about 90°F and this is the best temperature for application. Dark room temperature during application should be at about 70°F and material to be treated should have been stored in this temperature for some hours before being used, to prevent applying the emulsion to very cold surfaces,

2. SPRAYING.

An air pressure through the spray gun of 30-40 lbs. per sq. inch is considered to be best for spraying. It is advisable to spray clean warm water through the gun immediately before spraying the emulsion.

The technique of spraying emulsion may require a little practice before expertness is achieved but should present no great difficulties even to any entirely unskilled operator.

Large surfaces (having a width of more than 3 feet) such as 8 ft. by 4 ft. plates can be raised to an angle of 25° to allow continuous spraying without undue stretching and tiring of the operator's arm. Any surface up to 3 feet in width can be left in a horizontal position for spraying without tiring the operator.

An alternative method of spraying jobs wider than 3 feet and to allow the metal to be left horizontal, is to spray from the edge nearest to the operator towards the centre and at the end of the last "sweep" the operator walks round one end of the bench and continues to spray from the centre to the other edge. Spraying with the job in a vertical position or on an easel is not satisfactory as there may be a tendency for the emulsion to "run" towards the lower edge.

3. COATING BY MEANS OF A "V" SPREADER.

This simple device consists of a V shaped wooden trough having a slot along its length at the apex. The slot is covered inside by silver gauze and outside, by a pad of soft felt. The Emulsion is poured into the trough, the felt pad moistened and the spreader then drawn slowly over the surface to be coated. Application by this method is quick and simple and the spreader used should be slightly shorter than the width of the surface to be coated. Spreaders up to 24 inches have been used successfully.

4. HAND COATING.

This method of applying Emulsion is quite simple though practice is needed before the required degree of skill is obtained. Surfaces up to 20 in. by 16 in. can be handled fairly easily. The material to be coated after a preliminary wetting with warm water about 90°F is rested on the finger tips of the upturned left hand and the emulsion poured into the centre of the surface. The hand is tilted in each of the four directions required to help the flow of liquid towards the edge with a final tilt towards one corner to allow the surplus to flow back into the container, or after coating, the surface may be given a vigorous whirling motion to drive off excess emulsion and then laid on a cold level slab to set.

5. BRUSHING.

The use of a good quality house painter's varnish brush or blanchard brush is necessary and a thin even coating of emulsion can be obtained after a little practice. As mentioned earlier in these directions, a tin of emulsion when prepared for brushing makes only 80-ozs. This will ensure a liquid of the best viscosity for this method of application. Instead of dipping the brush into the emulsion, it may be found better to pour a quantity on to the centre of the surface to be coated and brush outwards with normal pressure. The brush should be moistened in warm water before use.

6. DRYING.

After the surface has been sprayed, it should be left lying flat on the bench for a few minutes to set and then taken for drying in a completely dark room at a temperature not higher than 90°F. Drying by heat will not affect the emulsion up to this temperature, and the more heat used, the sooner drying will be complete. An extractor fan in the room used for drying is, of course, an advantage.

7. DEVELOPING.

When surfaces coated by any of the foregoing methods have been dried and exposed to the negative either by contact printing or enlargement, the normal processes as applied to an ordinary photograph on Bromide paper have to be carried through. Any reliable bromide paper developer may be used (e.g. Johnson Universol, M.Q., 468, etc.). The normal developing time is 1½ minutes but this can be extended to 1¾ or 2 minutes if necessary.

8. FIXING.

After development, the use of a Stop Bath or water rinse is necessary before fixing.

An acid hardening fixing bath should be used, and this can be prepared by adding Johnson Liquid Acid Hardener to plain hypo baths or by using Fix-sol, Fixadon, Ultrafix with hardener, or Redifix.

9. WASHING.

Although this need not be carried on as long as is usual with photographs that are expected to keep for many years, a minimum of 15 minutes washing in running water is recommended.

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