

# SPRAY PAINTING FOR THE AMATEUR



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ISSUE 1

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# INTRODUCTION

There are several reasons why furniture, cabinetry or other items may be spray painted as a preferred finish vis-a-vis hand finishing. There are also several reasons why hand finishing has its place in furniture finishing.

**Annexure A** gives some of the pros and cons of above-mentioned finishes.

As the woodworker becomes more proficient in his hobby or is earning money on a part time basis, he may start taking an interest in the advantages of spray paint finishing for his projects.

The purpose of this article is to provide a basis for instruction in the practice of spray painting for the *home worker*, be the person be a hobbyist, “DIYer” or making items for sale. It will attempt to demystify the proses and show that it is not as difficult as one imagines. One thing, however, cannot be circumvented, and that is that the required equipment must be obtained. The *primary* equipment will be a suitable air compressor and a spray gun. Other items are low cost things.

Spray painting will under these circumstances should be done in the open air or well-ventilated covered area.

## WHICH PAINTS CAN BE SPRAY APPLIED?

Any liquid of suitable viscosity can probably be sprayed, even water. However, we are here only concerned with paints that are useful for woodwork finishing. This said, the principles are much the same even if the article is a metal object, e.g. a steel box.

**Annexure B** gives a list of the most common paints that can be spray applied. However, notwithstanding the wide range of paints shown in

annexure B, this article (and the training) will focus on so called reaction lacquer.

# **MODULE 1**

## **FAMILIARIZATION WITH THE EQUIPMENT AND SAFETY ASPECTS**

### **1. EQUIPMENT AND OTHER ITEMS**

#### **1.1. COMPRESSOR**

The size of the “tank” or air receiver is not important. I believe that smaller the tank, the less room it takes in your workshop. A tank of 25 l is sufficient. Try to find a system with at least 2 – 2 1/2 HP or 1.5 - 2 KW motor. It must be capable of 8 to 10 Bar pressure. Direct drive or belt drive are both good, the former being noisier.

The “free air flow” capability is directly related to the size of the motor; manufacturers will not fit under or oversized motors to a compressor. A 2 ½ Hp outfit will be able to supply sufficient air that any spray gun will require.

Although it is almost mandatory, make sure it is fitted with pressure gauge for tank pressure, pressure regulator and also with pressure gauge for the regulated air pressure, safety valve and shut off cock on the outlet. It is most important that a metal plate stating that the pressure vessel is certified with required particulars. More on this matter during discussion.

#### **1.2. SPRAY GUN**

Any reasonably priced gun (say less than R2000) will suffice, even some “cheapies”. The gravity feed type seems more popular than the suction cup types. A gun with 3 adjustments i.e. air flow, fan and paint feed, is preferred. Most guns have cups with about 0.6 l volume. The nozzle size most often is 1.4 mm diameter. The so-called “Low

Pressure Low Volume” (LVLP) guns are *not* recommended. Rather obtain a “High Pressure Low Volume” (HPLV) gun.

### **1.3. OTHER ITEMS**

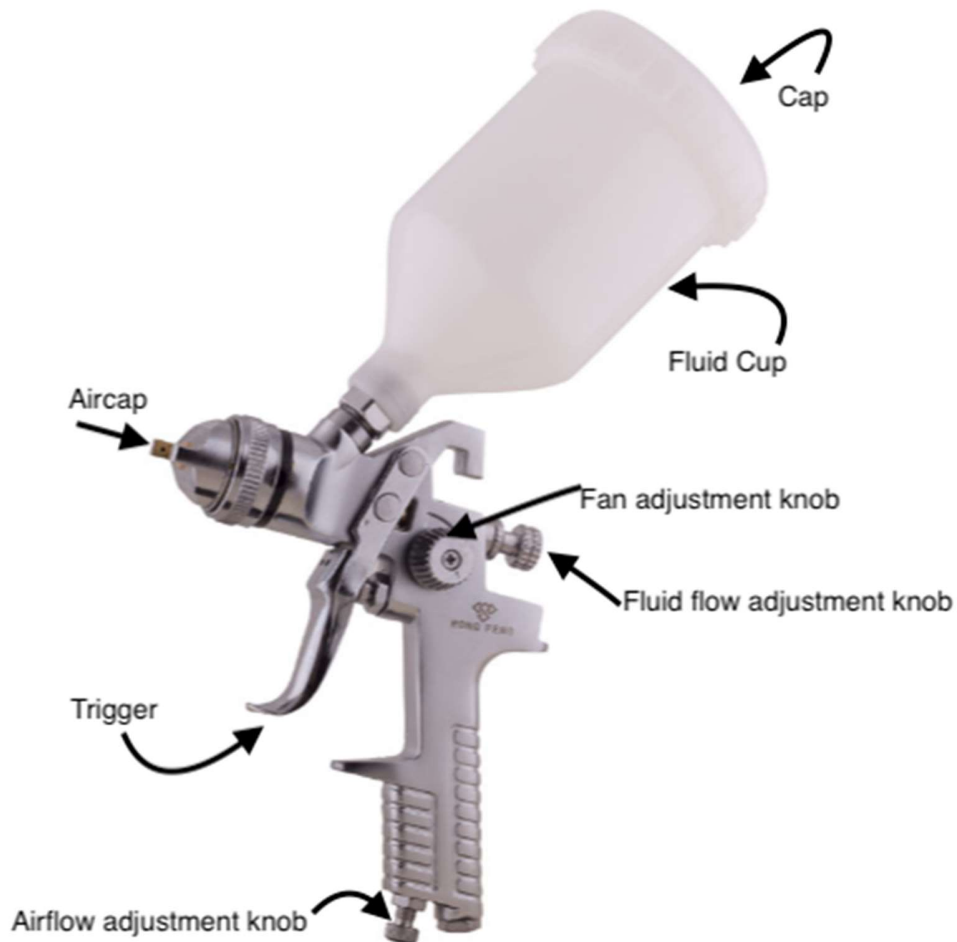
- Air hose of at least 6.5mm (1/4”) inside diameter (ID), or larger, with quick release couplings. Hose length about 6m or longer
- Moisture separator (at compressor or at spray gun)
- Suitable mask with cartridges intended for the purpose
- Two trestles and a plank or two
- A stand for the spray gun
- Air duster (indispensable)
- Viscosity measuring cup (Ford cup)
- Cleaning brushes (plastic kitchen brush and tiny bottle brush)
- Spanner for spray nozzle removal (normally supplied with gun)
- A couple of plastic measuring “spoons” of say 10, 20, 50, or 100ml. This is necessary to measure catalyst when small amounts of reaction lacquer must be prepared
- Some toothpicks, paint strainers, container with lacquer thinners (for washing the gun, etc.), cloths for general cleaning and other for workpiece dusting

## **2. GETTING ACQUAINTED WITH THE SPRAY GUN**

This is undoubtedly the most important element of spray painting and worth spending some time in getting well acquainted with it. It will save a lot of frustration and bad results with a fair amount of practice with it, before tackling the real item.

### **The gravity feed spray gun**

The picture below illustrates a typical gravity feed spray gun with the important items highlighted.



The gun consists of an aluminium body, equipped with a plastic or aluminium cup and a cap for the paint. The paint can flow under gravity down to the nozzle (usually with an orifice of 1.4mm diameter). The orifice of the nozzle is kept closed by a spring-loaded needle. The latter may be pulled back, opening the orifice, by means of a trigger.

**There are three adjustments which function as follows:** Refer to the picture above of a gravity feed HPLV gun

- **The needle adjustment** regulates the speed of liquid flow when the trigger is pulled back. Of course, the viscosity of the liquid will affect the flow. By the way, do not try to adjust the flow by partly

pulling the trigger, because it is impossible to feel how much to pull. After adjustment the trigger is always fully pulled back during painting.

- **The air flow adjustment** regulates the air flow/pressure of the compressed air at the air cap. The air cap is the item that covers the nozzle. Adjustments can also be achieved by regulating the pressure at the compressor (or both). When one has the gun in your hand, regulating air flow at the gun seems more convenient, or at very least to do final adjustments. The gun body is so designed that when the fan adjustment is closed, all the air will flow inside the nozzle which contains a ring of holes directly surrounding the orifice. This air is forced out of the cap between the hole in front of the cap and the orifice outer diameter. This gap is very small (about 0.1mm). The result is that the air speeds up, collecting the paint coming out of the orifice, and atomizing it.

**So, what is the purpose of this adjustment?** At the bottom of this question is the quality of atomizing of the paint. If the air flow is too much, for the flow of paint ensuing from the nozzle, it will result in a “over-atomized” spray, meaning that the paint particles at a distance from the nozzle will be dry. Dry powder will attach to the item to be painted surface.

Conversely, cutting the air flow too much, will result in a “under-atomized” spray. The effect of this is that too much liquid will be sprayed on the surface, causing paint runs and droplets (if sprayed on horizontal surfaces). Only visual judgement and practice will result in the “correct” setting.

It must be remembered that atomization is related to the amount of fluid flow and the air flow. More fluid flow or more viscous fluid will require more air flow, and visa-versa.

- **The fan adjustment** regulates the pattern of the spray hitting the surface to be painted. With the valve closed, the pattern should be a round disc, i.e. the paint mist flows out in a cone and the size of the painted disc will depend on the distance



between the gun and the surface (if no other adjustments are made). By opening the fan adjustment button (anti-clockwise) the pattern will become more and more oval.

### 3. SAFETY ASPECTS

- While the process of spray painting is not considered as dangerous, some safety aspects must be understood by the user.
- **The compressor.** Very few people are aware of the laws pertaining to “pressure vessels” i.e. the air tank. According to the law in South Africa there are several aspects about pressure vessels which should be adhered to.
  - The nameplate on vessel must state who the manufacturer is, what the maximum pressure is, and have a serial number. So long as one knows that these vessels are dangerous under pressure and must never be tampered with, e.g. welding on the vessel, tampering with the safety valve, one should be safe.
- **The Paint and Thinners.** Lacquer paint and lacquer thinners are flammable. Care must be taken not to bring this in contact with open flames. Besides this, the fluids can be toxic to the lungs and skin. An appropriate mask should be used, especially in circumstances where air circulation is poor. When spray painting outside, this danger is very low. Suitable gloves, resistant to lacquer thinner are hard to find, and consequently when handling thinners, hands should be washed promptly. As far as can be ascertained, lung diseases, and dermatitis are not at all prevalent amongst persons that practice spray painting for a living.
- **Compressed air from a duster.** This high-pressure air coming from the nozzle of a duster can injure ear drums, eyes, etc.

### 4. GETTING THE GUN ADJUSTED

Attach the air hose to the compressor and adjust the regulator to full pressure. Start by filling the cup with a small amount of thinners and close the cap. Before connecting the hose to the gun, close all the adjusters fully. Make sure the fluid needle is fully shut, by pulling the trigger. Now attach the hose to the gun, and do the following:

**TIP: Use this procedure with coloured thinners (a bit of stain added) to make the process much more visible**

- When pulling the trigger, nothing should happen. No fluid should flow, neither should air blow out. Open the fluid flow adjustment a bit, say half a turn, and pull the trigger, a small stream of fluid will spout out of the nozzle, but no air will come out. Open another half a turn, and repeat it, and by judging the distance that the fluid spouts out, one will quickly see that opening it anymore, does not increase the flow. Keep in mind that because thinners is much less viscous than paint, it will spout out much further. Close the valve again.
- Open the air flow adjuster slowly while pulling the trigger. Air will flow more and more vigorously from the air cap, but no fluid will be coming out (the needle is closed completely). Close valve again, and now open fluid needle half-a-turn. Very slightly open the air valve and pull trigger. Atomized fluid will blow out. Spray (pull trigger all the way) on a piece of cardboard or board of wood and watch what happens. If the air valve is slightly opened, tiny droplets will appear on the board with each shot. By closing, more spatter will result (under-atomizing). Opening beyond a certain point will clearly show a point where more air is not improving the spray. Beyond this point over-atomizing will occur. Play around with the needle opened another half-a-turn, and so on. See whether you can to observe when a lot of mist is created (when the air is too much). Create a corner by having a piece of board flat and another piece vertical on top of it. Spray in the corner and try to make as little overspray as possible.

- By opening the fan adjustment gradually, one can see that the round spot-gets progressively more oval. One will also see that the atomizing air through the nozzle, is getting weaker. This is because the fan air blowing through the side holes in the air cap, uses some of the air supposed to go to the nozzle.
- If any of the adjustments do not function as described above, the fault must be found and rectified. This may involve dismantling the ill-functioning item and correcting the malfunction.

# MODULE 2

## 1. DOING REAL SPRAY PAINTING

### 1.1. USING REAL PAINT

The gun can now be adjusted for a real practice run. Mix about 250ml of lacquer with the appropriate amount of catalyst (4% or 10ml in this case). Check the viscosity with a viscosity cup and thin until it takes 15 to 16 seconds to run empty. This may be achieved by closing the opening with a finger and filling the cup to the brim. *Open and time the number of seconds for it to empty.* One may experiment with higher viscosities during actual painting, but remember that the higher the viscosity, the thicker the layer of paint. This can lead to a “toffee apple” appearance.

Before filling with the gun, it must of course, be perfectly clean. The air hose is not connected yet. To check the flow, pour the prepared paint in the cup (always use a strainer). Observe the flow from the nozzle by opening the needle at least 1½ turns from closed position and pulling the trigger. The stream must be perfect, not twist nor come out skew. Open the needle adjuster a bit more. At the point where opening any more does not increase the flow, it is set at maximum flow. If satisfied, close the cap.

Connect the hose. What was learned about the adjustments with the “thinners” practice, must now be repeated with real paint. That is, the air flow and fan adjustments must be “fine-tuned”.

**Test run on a piece of wooden board** (Approximately 500 mm x 500mm)

To do the “real” job test run, set the board down horizontally on a convenient stand. Hold the gun almost vertically downwards. Start spraying by pulling the trigger with the gun “outside” of the board but near the front edge, either to the left or right side of the board. Bring

the spray to the front edge, the nozzle pointing almost straight down and some 150 – 200 mm above the board. Try to spray with the fan spraying about half its width over the front edge, i.e. half the paint missing the board, and move to the other side. A wet strip of some 50 mm or so should be seen down the near edge. Without releasing the trigger repeat, going in the opposite direction and the fan now more or less just inside the board. This half overlap should now be a wet stripe of some 100 mm wide. Complete the board moving to-and-fro, with half overlaps until the up to the back edge is done.

Some painters like to repeat crosswise, but this is not necessary, provided the first coat was done properly. How do we know if the paint was applied to thick or thin?

Plascon (Kansai) recommends for their Plascolac (reaction lacquer) that a layer of paint should be from 100 to 120gr per m<sup>2</sup>.

**TIP: To do a check, which, by the way, is seldom done by painters, take a piece of 3mm MDF 500 x 500mm. Weigh on an accurate kitchen scale and apply a layer of paint in the normal way. Let fully dry and re-weigh. Do the calculation: The weight increase is divided by 0.25m<sup>2</sup> (in this example). The result is the thickness of the layer in grams/m<sup>2</sup>**

## **1.2. OBSERVE THE FOLLOWING WHEN PAINTING**

- Do not paint in full sun
- Do not paint objects that are heated by the sun
- Do not paint when it is *very warm* (> 35°C) or *very cold* (< 5°C), or *very humid* (e.g. raining) or strong breezes
- The gun must not move too fast or too slow
- The aim is a nice wet appearance
- The gun must not “sway” from side to side during spraying

- The almost vertical position of the gun nozzle must be maintained
- Ensure good lighting over the surface
- Slow down, or speed up the movement of the gun as required
- Overlap stripes according to appearance (say, half lap)
- Move gun at constant speed, maintaining same distance between gun and object
- Do not place painted items in the sun to speed up drying

### 1.3. FINAL COAT

**Two coats** are sufficient for almost any paint job. However, surfaces that will be subjected to heavy wear and tear e.g. table and bar tops, may require a third coat.

Sanding sealer is not required as a prime coating. Both layers can be done with the finishing coat.

When the first coat is thoroughly hardened, it must be “flattened” with sanding paper before going on the second coat. On flat surfaces of at least a good measure bigger than your *random orbital* sander, this machine can be used to do the flattening. Use paper with a fine grit of 220 or 320. This speeds up the job considerably when large flat surfaces are painted. Hand sanding can also be done with 220 to 320 grit paper. Use a sanding block on flat surfaces. The purpose is to remove all paint runs, blemishes etc. and to break the shine of the first coat surface.

**This is also a good chance to do following repairs:**

- Sometime glue spots only present themselves after the first coat. Remove and repaint these spots.
- Hairline cracks should be repaired.
- Paint runs and other paint defects must be removed.
- If the article has been stained before painting, spray light spots and sanded-through spots with the original penetrating stain (perhaps thinned down a bit).

- Overlooked spots or areas where first coat was inadequate. Respray and flatter *thoroughly blowing and wiping away the dust, the final coat can be applied using the same technique as the first. When proficiency has been achieved with test pieces of board, the real project can be done. It is no secret amongst spray painters that on difficult objects, the first coat almost serves as a trial run, whereupon the approach can be corrected on the final coat.*

## **2. PREPARING AN ARTICLE FOR PAINTING**

People often ask how fine a wooden object must be sanded in preparation for spray painting. Here are some rules of thumb:

- The coarser the grain of the wood, the coarser the grit of sand paper one can use. Oak may be finished with 150 grit, while maple may require 180 grit. MDF may even ask for 220 grit on the flat faces.
- Lacquer spray is very forgiving. It is sometimes surprising with what one “may get away with”.
- Normal orbital sanders leave little rings on the wood. Random orbitals are better but not entirely trustworthy.
- Wherever there is the slightest opening, such as a slight crack, or two components not closing completely, the paint will, due to capillary action, not close the gap.
- Similarly, all other defects in the wood must be attended to.
- Any signs of glue will show up as white spots after the first coat. This is most prevalent with projects involving cherry wood or MDF. Should this come to light during the first coat, such spots can be scraped away with a sharp chisel before the paint hardens too much. These spots can then promptly be touched up.
- Edges of MDF absorb a lot of paint before it will become smooth. Fine sanding will help to an extent.
- The object must be dusted well with compressed air. Never attempt to use any liquids. A rag without fluff, along with the air, is the way to do it.





# MODULE 3

## SPRAY PAINTING AN ACTUAL ITEM

There are obviously many different shapes and sizes when it comes to items to be painted. Each kind of object needs a different approach. We will deal with a couple of general shapes.

It is considerably easier to spray on a horizontal surface than vertical. There are two ways to achieve a horizontal surface for painting.

- 3.1** The first is to manufacture the item in such a way that **painting is done before assembly**. In some cases, it is impossible to get inside small cubicles such as wine racks etc. to spray inside, so that pre-painting is mandatory. It is a matter of careful planning but, definitely not as difficult as one may imagine.

Some people finish the components of items such as chairs before assembly. Chairs are, by the way, somewhat daunting to spray paint, even for the experienced spray painter. A case in point is when making chairs that are assembled mostly with long dowels. The components can be pre-painted, then dowel holes drilled and finally assembled as a finished product. So called “director’s chairs” are a good example. To spray paint such an article after assembly is almost impossible due to the folding-up ability of these.

If a panel has some “biscuit” slots or perhaps mortises, or any other places where glue must be applied during assembly, simply mask these with masking tape.

- 3.2** The second method is to present the assembled object, so that the face to be painted, is horizontal. The challenge is to paint the following faces without messing up the already painted face. The way around this, is to mask the places where overspray is likely. While it seems to be cumbersome it is not that laborious and good results can be achieved.

**3.3** To start a spray-painting venture, think of selecting a suitable project.

- **Painting a cabinet door or flat panel.** Start by setting it down on the outside face. Go around the edge all the way. Then do the rear face. When sufficiently dry, turn over, spray again around the edge, and then the face. After flattening, repeat the procedure for the final coat, but skip doing the edge on the first round, doing the edge first after turning over then the front face.
- **Painting a drawer.** Remove the bottom if possible. Put the drawer in the normal orientation. A painting turn table is useful. Paint around the outside first all round, then proceed around the inside. There is a better chance of overspray in the inside if the outside is done last. If the drawer sides are high, spraying will most probably have to be done by going back and forth on each drawer side, two or three times, working from top to bottom. Repeat after flattening.
- **Painting a large table.** Remove the tabletop and paint this separately if possible. Put the table frame upside down. If it is a large table, say about 1m x 1m, start at the top of a leg sealing the foot pad, then proceed up and down each leg going all round each leg. In the case of some turned legs, it may be difficult to get “under” some turnings. Do these areas once the table is in the upright position. Then paint the skirts all round. Usually the insides of the skirts are not painted.
- **Painting a small table or chair.** If the table is small, say 500mm x 500mm, overspray is going to occur if the previous process is followed. A painting turn table, will help a lot. Go about it as follows: Put the object upside down, paint the foot pads. Next, work in 4 directions. Paint all the “faces” in the

direction in front of you, starting on the “components” (i.e. leg and skirts) nearest to you and then spray the those furthest. Remember not to try and paint “around” legs, etc. Turn the object by 90 degrees or else go around the object yourself to the next side. Repeat again to paint only the “faces” directly in front. Do so for all 4 “faces”. In the case of a chair this process must include the back rest.

In the case of turned legs with larger and smaller diameter regions along the length, the gun must be pointed up and down during painting, in order to reach “hidden” aspects which may be missed, should it be held perpendicular with the leg.

It is recommended that the first coat be done with the object upside down and the final coat in the upright position.

**TIP: Make use of the first coat application to improve paintwork on the final coat. One may even change your paint “strategy” when applying the second coat, to correct errors made during the first coat. While this may sound like a story, even experienced painters follow this tip.**

**3.4. Painting vertical flat surfaces.** The spray gun movements are much the same as on horizontal surfaces, but the likelihood of paint runs, is now a reality. Good lighting is very beneficial. Usually one would start at the top spraying to-and-fro, working your way downwards. It takes an amount of practice to get the knack, but it is easily mastered with little practice.

**3.5. Painting inside semi-closed items.** Overspray is the issue here. To minimize this, adjust the fluid flow drastically along with the airflow. It will result in a very mild spray with the minimum of overspray. Small “boxes” such as wine bottle rack

openings just cannot be reached inside and must be painted before assembly.

**TIP: Paint items such as drawers, and cabinet insides with the bottoms/backs removed, and paint these separately.**

**3.6. Spray painting faults.** Inevitably faults will crop up and one may be perplexed as to the reasons for it. **Annexure C** tables some common faults, the reasons for it and the remedies. This may be of assistance to remedy the fault(s) but be aware that without understanding the functions of the spray gun the advice may be of less or little value.

# MODULE 4

## MAINTAINANCE OF THE EQUIPMENT

### 4.1 MAINTENANCE OF SPRAY GUN

It is highly recommended that the spray gun is disassembled after a spray session.

1. Remove left-over paint, replace cap and wash gun by partly filling with thinners. Shake and pull trigger to clear nozzle
2. Remove fluid container cap and air cap and put it in container of thinners
3. Pull trigger and unscrew paint nozzle with the appropriate spanner. Wash the nozzle in thinners
4. It is not necessary to remove the needle every time, but it should be done now and then. Unscrew needle adjustment knob and pull out needle and spring. Add thinners. The adjustment knob may also be removed now and then, and the threads cleaned thoroughly.
5. Using a Nylon brush and a small bottle brush (the latter is sometimes supplied with the spray gun) scrub the cup and its cap and the entire gun well with clean thinners. Similarly, the other parts should be washed.
6. The air cap must also be cleaned as in 5. above. Observe that all the air holes are open. If not, the holes may be cleaned carefully with thin wire, e.g. a paper clip or some thinner gauge wire. Be careful not to damage the hole where the nozzle tip protrudes through.
7. The nozzle requires special attention. See that no paint and other debris is hiding inside and clear the nozzle orifice (use a tooth pick but never wires, etc.). The surrounding small air holes must also be cleared using an appropriate sized wire (e.g. Paper clip)
8. Check that fan adjustment knob and airflow knob turn all the way, in both directions. Use Q10 to lubricate if necessary.

9. Reassemble gun. Remember to pull trigger when refitting air nozzle.

## **4.2 MAINTENANCE OF THE COMPRESSOR**

1. Check the oil level regularly
2. Open the air filter and clean with compressed air. Wash if necessary. This is possibly the most overlooked maintenance item.
3. With air tank under pressure, slowly open valve below tank and allow condensed water to blow off.

# Annexure A

## COMPARING SPRAY PAINT AND HAND FINISHES

THE TABLE DOES NOT COMPARE FINISHES SUCH AS WATER BASED LACQUER, VARNISHES, ETC

<b>CHARACTERISTIC</b>	<b>SPRAY FINISH #</b>	<b>HAND FINISH \$</b>
EQUIPMENT COST	HIGH	NIL
LEARNING TIME	HIGH	LOW
POSSIBILITY OF BAD RESULTS	MEDIUM	LOW/MEDIUM
PREFERENCE TO APPEARANCE	INDIVIDUAL TASTE	INDIVIDUAL TASTE
SPEED OF APPLICATION	FAST	SLOW
DRYING/CURING TIME	FAST	SLOW
WATER RESISTANCE	EXCELLENT	LOW
LIFE EXPECTANCY	EXCELLENT ≥ 40 Y	NEEDS REGULAR REFIN.
APPLICATION IN FURNITURE INDUSTRY	EXCLUSIVE	NO
APPEARANCE ON LIGHT COLOURED WOOD	BROWNS WOOD	BROWNS WOOD
RESISTANCE TO SUNLIGHT	NOT SUITABLE	NOT SUITABLE
WOOD MOVEMENT DUE TO MOISTURE	FAIRLY LOW	AS UNFINISHED
# - FINISH WITH ACID CATALYZING REACTION LACQUER		
\$ - FINISH WITH WOODOC 10 OR DANISH OIL		

# Annexure B

## SPRAY PAINTS SUITABLE FOR WOODWORK FINISHING

TYPE OF PAINT	FEATURES AND COMMENTS	SOLVENT
<b>NITROCELOLOSE</b>	SINGLE PACK, OUTDATED, LIFE ABOUT 20 YEARS	LACQUER THINNERS
<b>REACTION LACQUER</b>	CATALYST NEEDED, INDUSTRIAL WORKHORSE, LIFE ≥ 40 YEARS, BROWNS OVER TIME	LACQUER THINNERS
<b>LACQUER WATER BASE</b>	NO CATALYST, NOT WELL KNOWN, NOT BROWNING	WATER
<b>VARNISH</b>	VERY OLD FINISH, SOME POLYURETHANE TYPES GIVE GOOD LIFE EXPECTANCE	TURPENTINE
<b>ENAMEL</b>	VERY OLD FINISH, NEEDS PRIMER AND UNDERCOATS	TURPENTINE
<b>"VELVAGLO"</b>	PLASCON PROPRIETY PRODUCT INTENDED FOR BRUSH OR SPONGE ROLLER	TURPENTINE
<b>K1 AUTOPAINT</b>	SINGLE PACK, USUALLY CALLED DUCO	LACQUER THINNERS
<b>K2 AUTOPAINT</b>	CATALYST NEEDED, AUTOMOTIVE INDUSTRIAL WORKHORSE	LACQUER THINNERS



# Annexure C

<b>SPRAY PAINTING FAULTS AND CURES</b>		
(The table below is acknowledged as from a Plascon instruction book)		
<b>EFFECT</b>	<b>CAUSE</b>	<b>CURE</b>
Dry spraying, giving sandy effect	Solvent too volatile	Use slower solvent
	Spray gun too far from work	Move closer to work
	Too much atomizing air	Reduce atomizing air pressure
Runs and sags	Too much fluid flow	Increase atomizing air pressure
	Gun too close to work	Move gun further away
	Movement too slow	Move gun faster
Uneven coating	Gun movement irregular	Move gun at uniform speed
	Uneven overlap	Overlap evenly
	Arcing of gun	Move gun more vertically, don't "swing"
Excessive overspray	Too much air (pressure too high)	Reduce atomising air pressure
	Uneven movement of gun	Move gun uniformly
	Fan width too wide	Turn back fan opening knob
Spattering or "orange peel" effect	Lacquer too viscous (thick)	Add more thinner
	Insufficient atomizing air	Increase atomizing air pressure
	Paint flow too high	Balance atomizing air/fluid flow