1. **WHY IS A FINISH APPLIED TO METALS?**

   - To protect them against the elements and resulting corrosion.
   - To increase the aesthetic / visual appeal.
   - To increase or reduce electrical conductivity.
   - To prevent or limit tarnishing of the surface, therefore, no need for repetitive polishing.
   - To provide decoration, such as the technique called etching.
   - To increase surface wear and resistance.

2. **LACQUERED METAL PRODUCTS**

   Lacquer is used on brass ornaments and on the surface of finely machined steel. This ensures that the surface remains as clean and polished / machined, as the day the initial finish was applied.

   Materials to be lacquered must have a clean surface, with all dirt / grease and rust removed. Lacquer should be applied in a dust free environment, with the workers wearing appropriate protective clothing, with goggles and a breathing mask. The spray 'can' version of lacquer is the easiest to apply.

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3. **SAMPLE POWDER COATED PRODUCTS**

   A sample of powder coated products, showing the variety of colours and finishes possible using this technique.

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4. **METAL - LACQUERED FINISH**

   Many metals suffer from surface tarnishing and even corrosion, if left open to the atmosphere / air. Surfaces can be protected through the application of different finishes such as paint or powder coating. However, sometimes the surface of metals can be attractive without a coloured coating. This is when lacquer is most useful. Lacquer is usually applied as a clear coating, leaving the surface texture on view. Lacquer forms a protective clear layer on metals and is particularly useful on brass, aluminium, silver and copper which are often in the form of decorative items. When lacquered, polishing and cleaning will no longer be required.

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5. **PLANISHED / HAMMERED FINISH**

   A planishing hammer is used to ‘hammer’ a patterned finish into the surface of a metal. Copper is often given a planished / hammered finish. It is first softened by a heat treatment process called annealing. It is cleaned before being planished. As the copper is ‘planished’, it is rotated on the stake. Planishing hardens the metal, ensuring the final shape (such as a bowl) has the strength to resist drops and knocks.

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6. **SPRAY PAINT FINISHES FOR METAL**

   Spray paints (in the form of spray cans) can be bought straight ‘off the shelf’ of most hardware stores.

   Metal may need a primer and undercoat, although it depends on the instructions on the paint can. Hammerite paint can be applied to a surface without the need for a primer or undercoat. Some cheaper paint sprays need a carefully cleaned surface, prepared with primer and an undercoat.

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**FOR DETAILED INFORMATION, WORKSHEETS, EXERCISES, AND ANIMATIONS ON FINISHES TO WOODS - GO TO - http://www.technologystudent.com/joints/joindex.htm**
**LATHE TOOL FINISH**

The lathe tool finish is produced by the different types of cutting tools such as a grip.

**MACHINED FINISH**

We can observe the machined finish on the surface of the lathe tool.

**LATHE TOOL FINISH**

The lathe tool is used to produce a machined finish. They are formed to produce a range of different machined finishes - two are shown below. A machined finish can be attractive and also have a practical function, such as a grip.

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**ANNEALING METALS**

Annealing is a heat process whereby a metal is heated to a specific temperature (colour) and then allowed to cool slowly. This softens the metal, which means it can be cut and shaped more easily.

Annealing sheet aluminium: Rub soap on to the surface of the aluminium and heat it on a brazing hearth. In a short time the soap will turn black. Turn off the brazing torch and allow the aluminium to cool slowly. It is now ‘annealed’ and should be very soft and malleable - easy to cut and shape.

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**ETCHING COPPER USING A PCB TANK AND A VINYL CUTTER**

A shape can be cut out of ‘sticky back’ vinyl, with a vinyl cutter and then ‘stuck’ to a piece of copper. The copper is then immersed in a PCB etching tank, in a mixture of clear etchant.

The area covered with the vinyl is protected from the etchant, whilst at the same time the unprotected surface is etched.

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**FINISHES FOR METALS**

For detailed information, worksheets, exercises, and animations on finishes to woods - go to: https://www.technologystudent.com/joints/joindex.htm