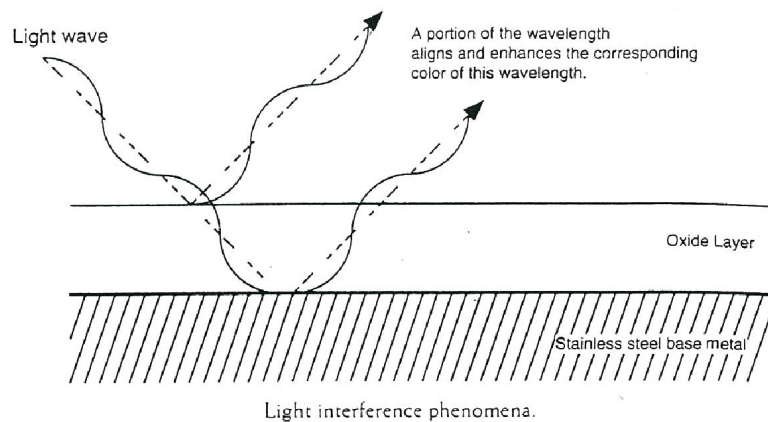


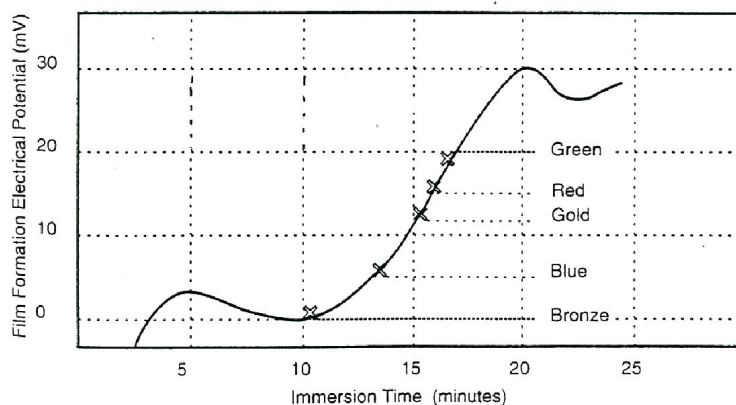
CHEMICALLY COLOURED STAINLESS STEEL

Stainless Steel is coloured by the interference of light process. There are no paints, dyes or pigments involved in the process and the colours are totally colourfast.

An array of colours can be produced on stainless steel. The colours of Blue, Black, Bronze, Charcoal, Gold, Green and Purple can be created by immersing stainless steel in a solution of chromic and sulfuric acids. The various colours are produced by controlling the build-up of thickness of the oxide layer that exists on the surface of stainless steel which when combined with the angle of light reflecting to the human eye creates the different colours able to be manufactured.



The colouring process involves degreasing the stainless steel in heated caustic soda and then immersing it in a solution of chromic and sulfuric acids. The induced thickness of the oxide layer ranges from 0.02 microns to colour bronze to 0.36 microns to produce green. The sequence of colours is bronze, blue, black, charcoal, gold, purple and green. Colours in between can be produced but are difficult to monitor and consistently produce whereas the quality of the above detailed colours can be monitored accurately provided the stainless steel used is of prime quality.



Graph of coloring process on stainless steel.

The colours detailed above can be produced on 304 and 316 grade material. Most chemical colouring is effected to stainless steel sheet but it is possible to colour fabricated components.

Coloured stainless steel is a sensitive material because it is prone to scratches which are not repairable. However if used in out of reach places such as cladding the colours that are able to be produced can provide unique architectural finishes. Coloured stainless steel can be combined with rolled, acid etched or bead blasted finishes to produce different textures, If combined with a rolled pattern durability is improved.

ADVANTAGES OF CHEMICALLY COLOURED STAINLESS STEEL

- ◆ As there are no inks, dyes, paints or pigments involved in the colouring process, sheets can be deep drawn, formed, bent and fixed mechanically without any cracking, flaking or peeling of the coloured surface, but welding destroys the coloured film.
- ◆ The coloured oxide film is harder and more resistant to scratching than the basic 304 grade substrate.
- ◆ Coloured stainless steel is UV resistant and won't fade in the sunlight. Colours are colourfast up to 200oC/392oF.
- ◆ Coloured stainless steel shows better resistance to surface pitting than uncoloured stainless steel.
- ◆ The surface film can be removed at any stage of processing, with little additional surface attack on the underlying metal by anodic treatment in suitable acid solutions. This technique can be used in conjunction with suitable masking, screen printing or photo-resist techniques to produce signs, logo, patterns or pictures on coloured stainless steel sheet.
- ◆ Compared to an uncoloured surface, adhesive bonding can be used on coloured stainless steel without limitations. Cold as well as warm curing bonding agents can be used, if the baking temperature does not exceed 200oC.
- ◆ The surface of coloured stainless steel is water and dirt repellent.
- ◆ Coloured stainless steel is used in areas such as operating theatres to suppress distracting reflections.
- ◆ The coloured film is many times thicker than the passive film of stainless steel so it will keep its beautiful appearance without rusting or discolouration as long as the surfaces are kept clean.
- ◆ The colours produced on the stainless steel surface are gloriously rich. Add a passing cloud to the coloured reflection of a building clad in coloured stainless steel and the entire building can seem fluid and alive. Lighting systems can also provide the building with further dimensions of colour.