User's Guidance of PPGI

--by wanzhi steel research institute

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Reasonable material selection not only meets the requirements of use, but also minimizes costs. If the material is not properly selected, the result may be that the material performance exceeds the usage requirements, resulting in unnecessary waste, or may not meet the requirements for use, resulting in degradation or inability to use. Therefore, users should attach great importance to the importance of rational material selection. Please contact our Magic Aftermarket or Wanzhi Technology Department if necessary.

(1) The choice of color coated board mainly refers to the choice of mechanical properties

substrate type (coating type) and coating weight, front coating performance and reverse coating performance. Use, environmental corrosivity, service life, durability, processing method and degree of deformation are important factors to consider when selecting materials.

1. Selection of mechanical properties, substrate type and coating weight

The mechanical properties are mainly selected according to factors such as use, processing and deformation. For example, the roof of a building usually does not bear the weight, and the deformation during processing is not complicated. Usually, the TDC51D can be selected. For parts with a relatively large degree of deformation, materials such as TDS52D and TDC53D should be selected. For components with load-bearing requirements, suitable structural steels, such as TS280GD, TS350GD, etc., should be selected according to design requirements. The commonly used processing methods for color-coated plates are shearing, bending, rolling, etc., and should be selected according to the characteristics of each processing method when ordering. In addition, since the mechanical properties of the substrate are usually replaced by the mechanical properties of the substrate during actual

production, and the color coating process may cause changes in the mechanical properties of the substrate, attention should be paid to this.
The type of substrate (type of coating) and the weight of the coating are mainly selected according to the application, environmental corrosivity, service life and durability. Anti-corrosion is one of the main functions of color-coated plates. The type of coating and the weight of coating are the main factors affecting the corrosion resistance of color-coated plates. Since the color coated panels for construction are usually directly exposed to the atmosphere, it is generally preferred that the hot-dip galvanized sheets and the hot-dip aluminized zinc coatings having good corrosion resistance and thick plating have higher corrosion resistance than hot-dip galvanized coatings. Further, the corrosion resistance generally increases as the weight of the plating layer increases, so that the corrosion resistance of the color-coated plate can be improved by using a substrate having high corrosion resistance and/or increasing the weight of the plating layer. For example, in industrially polluted and coastal wet areas, 140/140 hot-dip galvanized sheets or 75/75 hot-dip aluminum-zinc sheets are usually used. There is a difference in the corrosion resistance of the cut edges of steel sheets of different plating types, which should also be noted. In addition, the service life and durability are also important factors that can not be ignored when selecting materials. For long service life and high durability, substrates with good corrosion resistance or large coating weight should be used.

(2) Choice of front coating properties

The choice of frontcoat properties mainly refers to the choice of coating type, coating thickness, coating chromatic aberration, coating gloss, coating hardness, coating flexibility/adhesion, coating durability and other properties.

(3) Type of paint

1. Topcoat

Commonly used topcoats are polyester, silicon modified polyester, high durability polyester and polyvinylidene fluoride. There are some differences in hardness, flexibility/adhesion and corrosion resistance of different topcoats. Polyester is currently the most used coating, with good durability, good hardness and flexibility of the coating, and moderate price. The durability and gloss of the silicon-modified polyester and the color retention are improved, but the flexibility of the coating is slightly lowered. High-durability polyester

has both the advantages of polyester and durability, and is cost-effective. Polyvinylidene fluoride has excellent durability, and the coating has good flexibility, but the hardness is relatively low, and the color is provided less and the price is expensive. For the performance indicators of various topcoats, refer to the relevant materials or consult an expert. Topcoats are primarily determined by factors such as use, environmental corrosivity, service life, durability, processing and degree of deformation.

2. Primer

Commonly used primers are epoxy, polyester and polyurethane, and the adhesion, flexibility and corrosion resistance of different primers are different. The epoxy has good adhesion to the substrate and high corrosion resistance, but the flexibility is not as good as other primers. The polyester has good adhesion to the substrate and excellent flexibility, but the corrosion resistance is not as good as epoxy. Polyurethane is a primer with relatively good overall performance. Detailed performance indicators for various primers can be found in the relevant materials or consulted with experts. The primer is usually determined by the manufacturer based on the production process, use, environmental corrosivity, and matching relationship with the topcoat.

3. Coating thickness

The corrosion resistance of the color coated board is closely related to the thickness of the coating, and the corrosion resistance generally increases as the thickness of the coating increases. The appropriate coating thickness should be determined based on environmental corrosivity, service life and durability.

4. Coating color difference

Color-coated plates can be chromatically different during production and use. Since the color difference is affected by various factors such as production batch, color depth, use time, use environment, and use, it is usually negotiated between the supplier and the buyer.

5. Coating gloss

The gloss of the coating is mainly selected according to the use and usage habits. For example, domestic architectural color-coated panels usually choose medium- and low-gloss, home appliance color plates usually choose high gloss.

6. Coating hardness

The hardness of the coating is the ability of the coating to resist the mechanical action such as scratch, friction, collision, and depression. It is closely related to the scratch resistance, wear resistance and indentation resistance of the color coated board, mainly based on the use. , processing methods, storage and transportation conditions, etc. are selected.

7. Coating flexibility / adhesion

The flexibility/adhesion of the coating is closely related to the processability of the color coated board, and is mainly selected according to the processing method and degree of deformation. When the deformation speed is fast and the degree of deformation is large, a color-coated plate with high impact energy value and small T-bend value should be selected.

8. Coating durability

The durability of the coating is the performance of the color coated board during use, and is usually measured by the length of the service life. Coating durability is mainly affected by factors such as coating type, coating thickness, and environmental corrosion. The true durability of the coating is evaluated. The neutral salt spray test is one of the simplest and most commonly used artificial aging test methods. The UV lamp accelerated aging test is also a commonly used artificial aging test. In addition, the color coated board may be used in special environments such as acid rain and humidity. At this time, the corresponding artificial aging test should be selected for evaluation. It should be noted that artificial aging tests usually do not fully simulate the actual use environment.

9. Other properties

In some cases, color-coated plates may need to have better resistance to organic solvents, acid and alkali, and pollution, and attention should be paid to such special properties.

(4) Selection of reverse coating properties

The reverse coating is usually determined by the manufacturer according to the use and environment of use. When the corrosiveness of the environment is not high, the reverse side is usually only coated with one layer, mainly for decorative purposes. If the insulation is pasted on the reverse side, it should be indicated when ordering. In order for the manufacturer to apply a coating with good adhesion properties on the reverse side. When the environmental corrosion is high, two layers should be applied to improve corrosion resistance.