GENERAL COATING DEFECTS GUIDE BOOK

一般涂装缺陷指导书



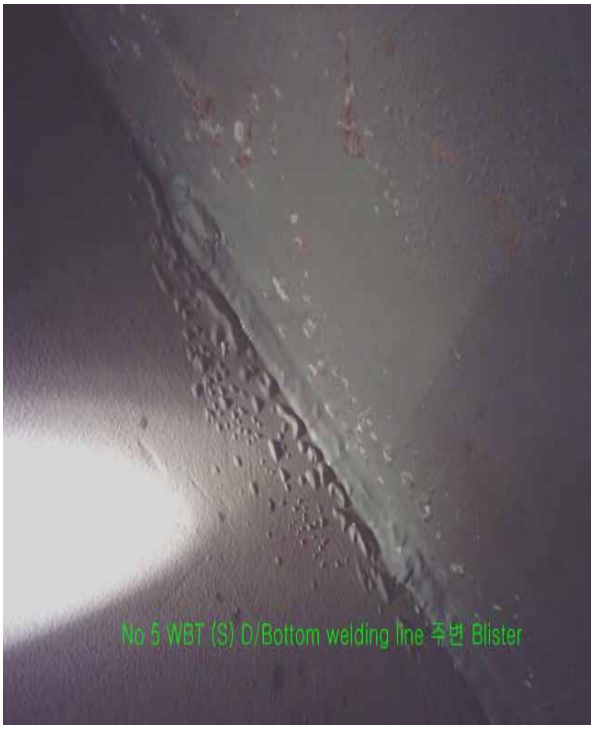


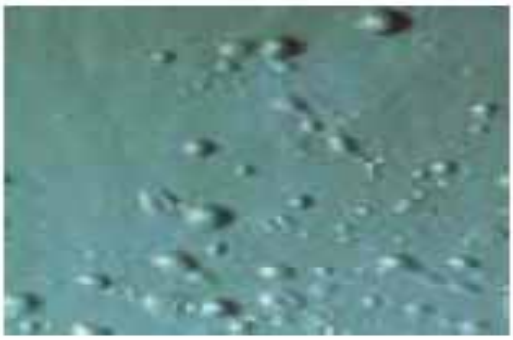
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BLISTERING（气泡）







1. Appearing(现象)

Air covered by liquid coating. 气体被一层液态膜包裹起来的现象

2. Cause（原因）

1) water on the surface. 被涂面残留的水汽
2) wrong thinner, 使用了不适合的稀释剂
3) surface temperature above coating temperature too much.
   被涂面与油漆间存在很大的温度差（被涂面温度高而油漆温度低）
4) thinner in the coat penetrate the cured coating surface.
   没有完全干燥的底漆内的稀释剂，挥发通过已经表干的面漆漆膜时。
5) heavy air pressure or dry spray cause the Air Pocket
   过大的空气压或在出现飞漆（dry spray）问题的底漆表面进行涂装时出现Air Pocket
6) holes on substrate.(inorganic coating / cement surface).
   有孔隙的底材表面（无机油漆表面／水泥面）
7) water in the painting hose. 喷枪管中存在的水份
8) pollution on the substrate (oils). 被污染的底材表面（油脂等）
9) poor defoaming ability coating. 涂装本身的消泡性能较差

3. Solution（解法）

Spray after surface preparation (abrade, clean, mist spray).
针对于上述的各项原因，经过处理后进行涂装（打磨、清洁、雾喷等措施）

BLEEDING (渗色)







1.Appearing(现象)

Bleeding is a discolouration of the topcoat often occurring as a red or yellow colour shadowing.
渗色是发生在面漆上的一种退色，漆膜变红或变黄。

2. Cause (原因)

1) Soluble pigments (dyes) from the original coating are dissolved in the solvent of the repair materials and discolour the surface.
原漆膜中的颜料（染料）被修补使用的油漆中的溶剂溶解，使漆膜表面退色。
2) Bleeding through can also occur when excessive peroxide from the polyester filler is dissolved by the solvent in the repair material. The peroxide then reacts with pigments and there is a yellow-brown discolouration in the filler spots. Blue and green tones are particularly prone to this.
聚酯填料中的过氧化物被修补使用的油漆中的溶剂溶解过量的话，也可能发生渗色现象。然后过氧化物与颜料发生反应，漆膜上会出现黄灰色点状渗色。蓝色和绿色特别容易发生这种现象。
3) Bitumen or tar residues.
沥青或焦油漆残留。

3. Solution（解法）

Prevantion:（防止）

Spray over the original coating preferably with an isolating primer and only use the stated quantities of peroxide when mixing the polyester filler.
在原油漆上喷涂时，最好隔离底漆。混合聚酯填料时，使用合适量的过氧化物。

Repair:（修补）

If there is only slight bleeding through, the whole area should be isolated with a Stone Chip and Underbody Protection. If the bleeding through is severe, all paint must be sanded off this area and a new paint build applied.
只有轻微渗色发生时，整个区域要用Stone Chip隔离保护。如果渗色严重的话，打磨掉所有涂层，重新涂装。

Blooming / BLUSHING by AMINE（胺白）







1.Appearing（现象）

Blooming or blushing will cause loss of gloss and dulling of the color of the paint.
此现象会使漆膜失光变暗。

2. Cause（原因）

The reason for blushing of paints can be many. In some cases the solvent might be evaporating too quickly. Evaporation of solvents from the paint results in a lowering of the temperature and could result in condensation on the surface. Very often this type of defect in encountered when paint has been applied outdoors late in the afternoon or at night when temperature drops. Water condensing on the surface of the wet or semi-dried paint results in blooming. In certain cases where water settles as droplets in horizontal surface also eater spotting will be encountered.
油漆发白的现象有很多种.在一些情况下，溶剂也许蒸发的太快.油漆表面温度的下降导致了温度的下降，可能引起表面的浓缩.出现这种漆病通常是由于晚上在户外应用油漆的缘故或者在夜晚温度降低的时候.凝固在湿的或半干的表面上的水也能导致这种现象.在某种情况下，水平面上的水滴也导致会胺白发生。

3. Solution（解法）

The application of paint should be done at more advisable hours. For most paints there is an upper limit as to the temperatures and relative humidities at which the wet paint should cure. In cases where there is a lack of gloss on large areas, it might be necessary to sand down and reapply the topcoat.
油漆应该在比较合适的时间使用，对大多数油漆来说，在温度上和湿油漆固化的湿度上都有一个上限.如果大部分区域都缺少光泽度，就有必要用砂纸打磨，重新进行面涂.

CHALKING (粉化)





1.Appearing(现象)

Decomposition of the binding agents at the paint surface resulting in the release of the color pigments. Reds and yellow colors turn whitish and dark blues turn bronze.
漆膜表面粘结剂的失效使得颜料脱落。红色和黄色会发白，深黑色会有青铜色发生。

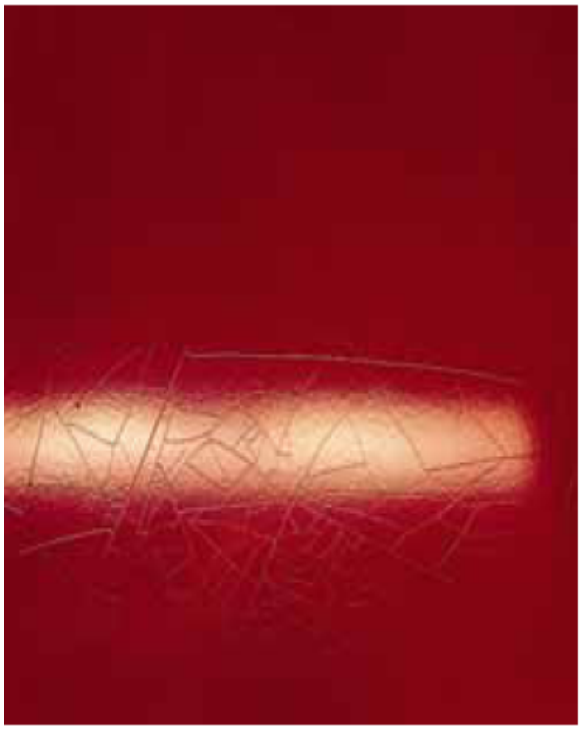
2. Cause (原因)

1) Choice of wrong hardener or amount. 固化剂量使用错误。
2) Colour coats applied too thick. 涂装漆膜厚度过大。
3) Weathering (aggressive environmental pollution such as sulphur dioxide and nitrous oxides in combination with high humidity and exposure to UV radiation).
气候影响（侵蚀性环境影响，如硫化物，氮化物在高湿度和紫外线暴露下混合影响）
4) Poor after-care of the paintwork. 涂装后缺乏维护。
5) Poor repair to a previously chalking paint finish. 已经发生粉化的没有进行修补。

3. Solution (解法)

1) Always use recommended hardener and mixing ratio. 使用推荐的固化剂和混合比率。
2) Always keep to the recommended film thickness and number of coats. For colours with poor covering power (yelllow's reds etc), use a coloured surfacer (as used by OEM Automotive Industry) such as Glasurit HS Tinting Filler 285-95.
保证推荐的漆膜厚度和涂装道数。对遮盖力差的颜色（如黄色，红色）使用带颜色的面漆（如 OEM 制造上使用的）Glasurit HS Tinting Filler 285-95。
3)+4) Regular paintwork maintenance (see chapter "Aftercare of Paintwork").
正常的维修保护工作。（见 “ 涂装后维护 ” 章节）
5) Ensure chalked paintwork is removed back to a sound substrate before refinishing. Use base coat + clear lacquer system where possible.
保证粉化的漆膜在复涂前彻底修补清除至底材。可能的话使用主漆+清漆的体系。
Try to polish out the problem using Glasurit Fine Polishing Paste 562-1602 and finish with any standard deep gloss polish. If the chalked surfaces do not respond to this action, or if the problem returns within a short period (a few weeks), then the damaged paintwork must be removed back to a sound substrate and refinished.
对发生粉化的部位使用 Glasurit Fine Polishing Paste 562-1602 磨光后面涂上光剂。如果此方法无效，或短时间内（几周后）又发生粉化，必须清除粉化的部位至底材后再涂装。

CRACKING (裂纹)







1.Appearing(现象)

This type of defect consists of fine superficial cracks, which are distributed over the surface in a more or less regular pattern. Checking is often a surface phenomenon, since these cracks seldom penetrate all the way through the paint film.

这种漆病常常是细微的裂痕，在一种比较规则的膜板表面上产生龟裂，龟裂通常是一种表面现象，因为这些裂痕很少能渗透整个漆膜.

2. Cause (原因)

Often this is a formulation problem. The stresses in the film cause the surface of the paint to become brittle.

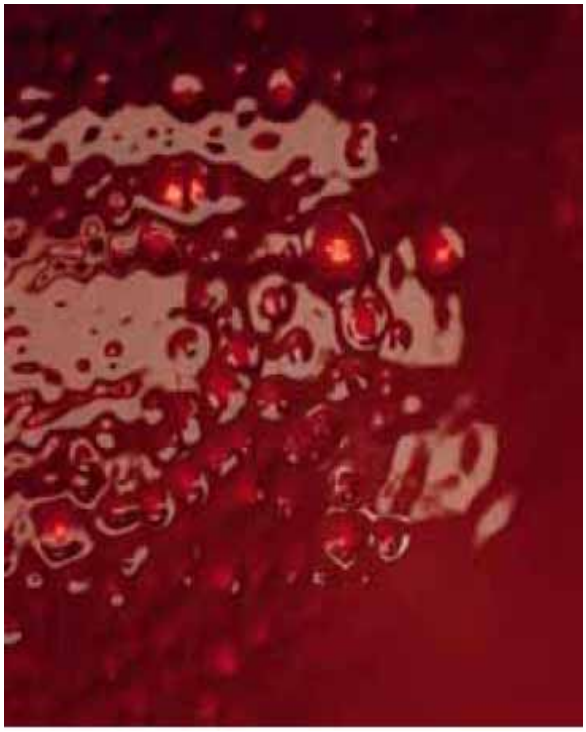
通常这是一种漆膜固化上的问题，漆膜上的拉伸力会引起油漆表面变脆。

3. Solution（解法）

When checking occurs, sanding down and reapplication of a new topcoat is often the solution.

当龟裂发生时，解决办法通常是砂纸打磨和重新涂装新面漆。

CRATERING(陷穴)







1.Appearing(现象)

Craters are circular dents with raised edges in the topcoat or the intermediate coats.
陷穴是面漆或中间漆上发生的边缘突出中心下陷的圆形凹坑。

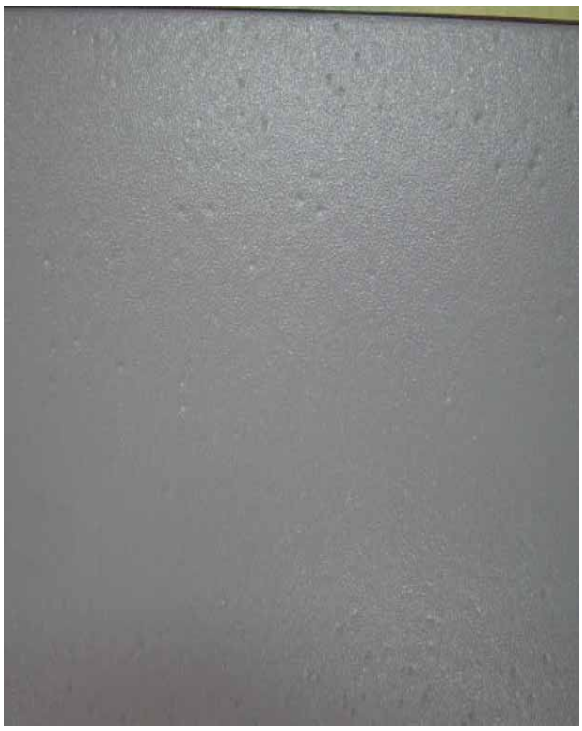
2. Cause (原因)

1) Oil, fat, wax and silicone polish residue were not thoroughly removed from the surface to be coated.
油，脂，蜡和硅酸磨光剂的残留没有从底材上完全清除。
2) Contamination from the air, e.g. spray mist from another type of paint.
空气中的杂质，如其它油漆的参杂。
3) Oils or water from the compressed air.
压缩空气中的油或水。
4) Silicones from the aerosol cans (Water repellents).
气雾罐中的硅杂质（耐水性）
5) Foreign substances from industrial plants near by.
附近其它车间带来的污染。

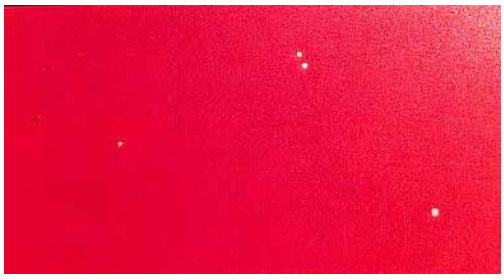
3. Solution（解法）

Prevention:（防止）
Only a very thorough cleaning of the areas to be coated can prevent craters from forming. If products which contain silicone (polish, sealing compounds) are used this should be carried out in a separate area, totally away from the spray area.
只有对底材表面的完全清洁才能防止陷穴的发生。如果产品中含有硅物质（如增光剂，密封剂）清洁工作需要在分隔的区域进行，远离喷涂区域。
Repair（修补）
If craters have formed sand away this layer of paint thoroughly clean and apply a new paint layer.
完全清除已经发生陷穴的漆膜，重新涂装。

FISHEYE（鱼眼）







1.Appearing（现象）

Fish eyes are a separation or pulling of a wet film, exposing the underlying substrate or paint.
鱼眼就是湿漆膜的分离或者拉离，暴露出下层的漆膜或者底材。

2. Cause（原因）

Fine droplets of oil often cause fish eyes. The oil might come from the compressed air use during blast cleaning or for removal of dust from the surface. Fish eyes are also caused by impurities of silicone on the surface from grease or waxes.
轻微的油滴经常会引起鱼眼印疵，油可能来自喷砂时或者清理表面灰尘时的压缩空气中，如果表面的硅酸胶被油脂或腊污染了，也会引起鱼眼印疵。

This type of defect often has a minor area in the center of the defect, which contains the contamination, as well as some of the paint. The surrounding areas will not be wetted by the paint, so here you will find the color of the underlying paint or the substrate.
这种漆病通常是在缺陷的中心有一小部分，区域中有污染物以及一些油漆。周围区域没有被油漆浸湿。所以在这里你会发现底漆或表面的颜色。

3. Solution（解法）

This type of paint defect will appear instantly during application. It must be removed by proper means, e.g. with a solvent wetted cloth. Sometimes it is wise in advance of the project to test the compressed air in a blotter test. The compressed air is blown through a white cloth for a minute or so. Oil or humidity will wet the cloth. If oil appears filters and oil/water traps must be checked. There also a possibility of adding Anti-fish eyes to the paint.
这种漆病在涂装时就会立刻出现，它们必须用适当的方法去除，例如使用用溶剂沾湿的布.通常在工程开始前在压滤测试中测试压缩空气是很明智的。压缩的空气通过白布吹大约1分钟左右。油滴或水分都会使抹布变湿，如果油滴出现了，过滤器和油/水分离器就必须被检查，这样也许能够减小油漆的抗鱼眼能力。

If the defect is observed after curing of the paint, the area should be sanded down or blast cleaned. Even small dust particles embedded with silicone could cause trouble for the next coat if is not removed.
如果缺陷是在油漆固化后观察到的，就应该把这个区域进行喷砂处理，否则就连嵌在硅化物中很小的灰尘微粒都能在下次涂装中引起麻烦。

FLOATATION(CLOUDING) (浮色)







1.Appearing(现象)

Floatation is a speckled appearance of metallic finish which covers a large area.
金属面漆在大面积上散布的浮色。

2. Cause (原因)

1) The base-coat has been applied in uneven coats.
主漆涂装不均匀。
2) The flash off of the base-coat was too short before the clear-coat was applied. This can cause the metallic coat to be re dissolved. Result: The metallic and pigment particles float and change their position.
清漆涂装之前主漆的固化时间不够。会使金属漆再溶解。原因：金属和颜料颗粒移动换位。
3) Too wet a spray application to the first clear-coat, causing a redissolving of the basecoat.
清漆溶剂含量高，使主漆溶解。

3. Solution（解法）

Prevention:（防止）

Spray the metallic base-coat evenly and not too wet. Ensure that the correct flash off time is allowed before the application of the clear-coat in accordance with the manufacturers instructions.
均匀喷涂金属主漆，稀释剂量不要过大。保证在清漆涂装之前主漆有充足的固化时间。

Repair:（修补）

If cloudiness is visible before the clear-coat application, respray with base-coat thinned normally (do not over or under thin) and reduce the pressure of the spray gun. If clouding is only visible after the application of the clear-coat, sand the clear-coat when dry and re-coat with base-coat and clear-coat.
如果浮色在清漆涂装之前出现，减小喷枪的压力，使用正常的稀释量再喷涂一遍。如果浮色在清漆涂装之后出现，等清漆固化后打磨掉，然后重新涂装主漆，清漆。

HOLIDAYS (漏点)







1.Appearing(现象)

Pinhole, skip, discontinuity, voids and parts that does not painted.
针孔，不连续点，孔隙，漏涂的部位。

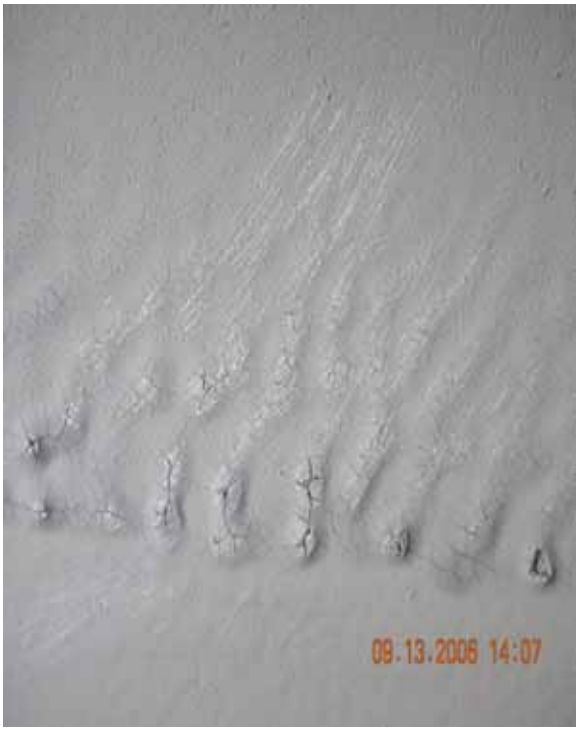
2. Cause (原因)

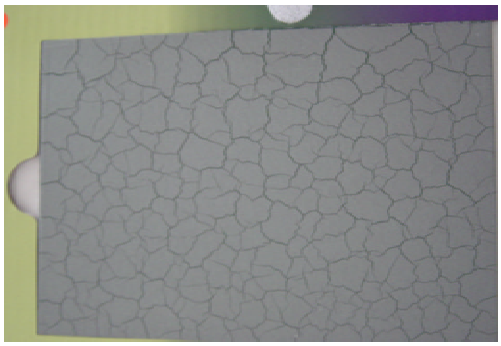
1) Usually happens on the hard to spray areas or thin spray pattern.
常发生于涂装困难或进行薄涂装的部位。
2) Rust could bloom in a very short time at these places.
在短时间内发生锈蚀。
3) Applying poor tractility coating or improper thinner.
使用了延展性不好的涂料或使用了不良的稀释剂

3. Solution（解法）

Be careful during application; and 50% overlapping.
在涂装时一定要细心并进行50%的重叠涂装。

MUD CRACK（龟裂）







1.Appearing（现象）

This type of paint defect has been given its name since it resembles the cracking in dried mud.
这种漆病是因与干泥的裂痕相似而得名.

2. Cause（原因）

The most common reasons for mud cracking is excessive film thickness. Sometimes combined with improper application conditions e.g. hot weather, fast evaporating solvents.
大龟裂最常见的原因是：漆膜过厚，有时也与不适当的涂装条件有关，如较热的空气，溶剂的迅速蒸发。

3. Solution（解法）

When applying zinc-ethyl-silicate pains, be sure to have an extra look in the data sheet to obtain the correct DFT. For many zinc-ethyl-silicate paints the upper limit will often be around 75 ~ 100microns㎛. Since the solvents are very volatile, the use of a wet film gauge can be difficult. If application is carried out in hot seasons, a change of thinners might be suitable. Areas with mud cracking must be re-blasted and painted.
在使用无机富锌漆时，一定要参照说明书以获得正确的干膜厚.对很多无机富锌漆来说，干膜厚度应在75-100微米间.因为溶剂易挥发，所以很难使用湿膜测厚仪.如果在较热季节进行涂装，稀释剂的变化是很合适的，出现大龟裂的区域就要重新喷砂和涂装.

LIFTING（剥离）







1.Appearing（现象）

Lifting describes the attack of a coating on an old or new paint, usually due to solvent action, often resulting in blisters and/or the formation of a wrinkled film.

咬底产生于新旧漆膜上，通常是由于溶剂作用，导致气泡或漆膜褶皱。

2. Cause（原因）

In most cases lifting will be seen after over coating of oxidative drying paints. This is very seldom encountered when over coating with the same generic type of coating, although it might occur. The more common source of lifting is maintenance of e.g. alkyd systems with systems with containing strong solvents. The strong solvents of the topcoat causes swelling of the alkyd.

在大多数情况下，咬低常常发生在氧化干燥漆的涂层上。在相同类型的漆膜上很少发生但也有可能。产生咬低的最普遍原因是在保修中，如：醇酸类与其它强溶剂涂料配套使用时，面漆含有的强溶剂会使醇酸溶剂膨胀，产生咬低现象。

3. Solution（解法）

Precautions should always be taken when re-coating new or old alkyd systems with other coatings than alkyds. Carrying out a test, where the new paint system is applied over a small area, will usually be sufficient to determine if further application is safe or not. Using epoxy mastics with a high content of solids prior to the topcoat, will also diminish the risks of lifting.

当在新旧的醇酸体系上复涂其他比醇酸强的体系之前，必须提防咬底。首先要做试验，在一个小的区域进行涂装才能保证这种体系是否安全使用。在面漆前，使用高固含量的环氧厚浆漆，业能够减小咬底现象的产生。

ORANGE PEEL（橘皮）







1.Appearing（现象）

Surface defect provides the film with a dimpled appearance, resembling the skin of an orange.
表面缺陷，漆膜呈酒窝状，类似橘子的皮。

2. Cause（原因）

The reason for this type of surface defect can be a mixture of many. The most common ones being: application reasons: like poor atomization pressure, gun too close to the surface or solvent evaporating too quickly.
产生这种漆膜表面缺陷的原因比较复杂.最常见的是：施工原因，像微粒化压力不良，喷枪离表面太近或溶剂蒸发太快。

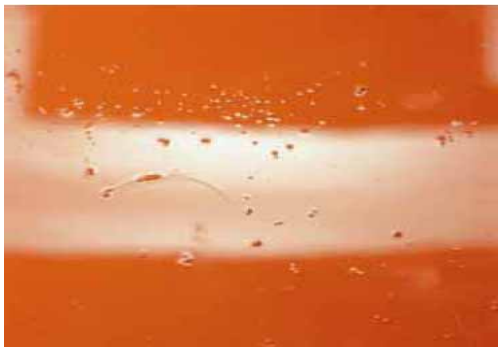
3. Solution（解法）

If might be necessary to adjust the atomization pressure slightly. It is important that not too high a pressure is used too avoid orange peel. As with sags and runs, orange peel can be brushed out while the paint is still wet or sanded down if it has dried. If adjustments don't correct the problem, assistance from the paint manufacturer is needed.
如果需要就轻微调整一下压力，重要的是压力不能过大，以产生桔皮，存在流挂和桔皮现象，当漆膜还是湿膜时，用刷子进行处理，在漆膜已经干的情况下，用砂纸打磨，如果这些调节不能解决问题，那么就需要油漆生产者协助。

OVER,DUST,DRY SPRAY (重喷，漆尘，干喷)







1.Appearing(现象)

Overspray or dry spray is a common paint defect, particularly where fast-drying paints are used.
飞漆或者干喷是一种常见的漆病，尤其是在快干型漆的时候产生。

2. Cause (原因)

The most common reasons for dry spray, overspray, is a poor application technique. The problem is often related to either poor gun adjustment or too great a distance from the surface during application. The normal procedure is application of paint at a distance of 30 ~ 50 cm perpendicular to the object. Angling the gun increased the distance to the object. Overspray can also be related to both high ambient temperatures during application or ventilation.
产生干喷和气雾的最常见原因是施工技能不佳。喷涂时，枪口与被涂层距离过远，正常涂装施工时，喷枪与被涂面的垂直距离应保持在30-50厘米处。改变喷枪的角度会增加两者之间的距离。涂装施工中或者通风中的大气温度太高，也会引起漆雾。

3. Solution（解法）

Correct distance and angling of the gun. If the paint applied is a physical drying paint an additional coat will do the job. If the paint is oxidative drying or chemical curing, overspray has to be removed by sanding.
要调好枪的角度与枪距。如果使用的油漆是一种物理性干燥漆漆，那么就要再喷涂一道漆，如果是氧化干燥漆或固化漆，就可以使用砂纸打磨去除漆雾，然后补涂。

PINHOLING (针孔)







1.Appearing(现象)

Pinholes are small holes formed in the coating during application and drying.
针孔是在涂装施工和干燥中形成的小孔。

2. Cause (原因)

There might be several reasons for the problem. In many cases pinholes are related to air/gas or solvents evaporating during of the paint. Application of paint too close the steel with excessive atomization pressure can cause pinholes.
这种问题有几种起因。在多数情况下与涂装中空气/天燃气或溶剂蒸发有关。涂装油漆时离钢铁太近、微粒化压力过剩，将会产生针孔。

Also the surface itself might cause pinholes. You might have experienced this during application of a second coat onto zinc – ethylsilicate primers. As the second coat is applied it forces entrapped air in the porous zinc coating to surface. This will sometimes take place at a stage in the curing process where the coating fails to flow out before the paint sets. The result is generally popping and pinholes in the second coat.
而且表面本身也能引起针孔。经验表明，在无机锌底漆的二次涂装中你也许会遇到这种问题。在二道涂装时会在粗糙的锌粉表面陷住空气。在油漆没有流平，就固定的区域，通常会在固化阶段发生这些情况。结果是在二道涂装中出现爆孔和针孔。

3. Solution（解法）

Having pinholes in a coating can be a serious problem. In cases where the pinholes are going all through the coating to the steel, this will cause pin point rusting. Areas with pinholes should be repaired by proper means. The normal procedure is often disc-sanding and touch-up by brush or roller with the proper repair system. In areas with only few pinholes, using a brush to mechanically force paint into the pinholes might work. But on larger areas, this is too consuming and the area must be disc-sanding and spraying.
漆膜中存在针孔是一件非常严重的事情。特别是针孔透过漆膜到达钢铁表面，将会造成针点性锈蚀。针孔必须按照正确的方法修补。一般的程序是砂纸打磨，在按照适当的修补体系使用刷子或辊子补漆。如果针孔的面积不大，用刷子将油漆强行涂入针孔中也能解决问题。如果面积太大，这样修补就不合适了，必须砂纸打磨然后喷涂。

POOR ADHENSION(FLAKING) (咬底)







1.Appearing(现象)

The paint lifts from its underlying surface in smooth flakes. These flakes may be easily broken, with a tendency for the edges to peel away from the surface.
油漆以光滑片状脱离底面。此片状在涂装边缘很容易破碎，脱离底面。

2. Cause (原因)

Loss of adhesion between a layer of paint and its underlying surface. This may be caused by:
漆膜间或漆膜与底材间的附着力失败。主要是由于：

1) Contamination of the underlying surface by wax, grease, silicone, oil, release agents, water, corrosion or soap
底材表面的杂质，如蜡，油脂，硅物质，延展剂，水和碱性腐蚀物。
2) Incorrect or non-use of metal conditioner on steel or aluminium surfaces.
钢铁或铝材表面的不正确或不适用金属状态。
3) Inadequate keying of the surface.
不适宜的接触面。
4) Surface too hot or too cold when sprayed. 喷涂时被涂表面温度太高或太低。
5) Use of the wrong primer process, primer not properly dry.
选择了不合适的底漆，底漆固化不良。
6) Incorrect viscosity of paint, use of wrong or poor quality thinner, compressed air pressure too high.
油漆黏度不合适，选用稀释剂不正确或量不够，压缩空气压力太大。
7) Paint film applied too thickly. 漆膜厚度涂装过厚。
8) Build up of stress between two adjacent layers of paint. 漆膜之间的应力

3. Solution (解法)

Remove the detached paint from the affected area. Prepare the underlying surface correctly and repaint. 清除分离的油漆。正确进行底材表面处理，重新涂装。

POOR ADHENSION(PEELING) (剥落)







1.Appearing(现象)

Peeling happens when one or more coats of the paint system can be removed from each other or from the surface. This of course indicates that the paint does not adhere to the surface.
剥落就是某一层或者几层漆膜相互之间能够分离或者与底材分离。这种缺陷表明油漆与表面之间不能相互黏附。

2. Cause (原因)

Peeling can be caused by improper surface preparation. Application of paint onto rust, may in some cases not provide sufficient adhesion to the steel. Often this is due to the amount of rust present before application of the paint. Other types of contamination such as grease, oil, dust etc. are also likely to cause peeling. Anther common cause for peeling is exceeding re-coat interval for the material. This could be the case for cross-linking coatings, such as epoxies or polyurethanes.
剥落是由不适当的表面处理引起的。在铁锈上刷漆，一些情况下将导致无法提供与钢铁间足够的附着力。通常这是取决于使用油漆前铁锈出现的数量。其他类型的污染像油脂，油滴，灰尘等都能引起剥落。另一种剥落原因是二次涂装时间超过了材料的涂装间隔。这样的涂料是交联型涂料，像环氧漆和聚氨酯漆。

3. Solution (解法)

If peeling occurs, the paint has to be stripped of and the surface cleaned before a new coat is applied. Cleaning can be either solvent cleaning, alkaline cleaning followed by fresh water cleaning. When long interval occur prior to application of additional coats adhesion can be improved by sanding or sweeping the surface.
如果发生剥落现象，在进行新涂装前要把油漆剥去，表面处理干净。可以用溶剂清洁，碱处理后可以用清水进行清洁。如果涂装间隔过长，涂装前需要将表面打磨，这样会增加漆膜的附着力。

POOR HIDDING（隐蔽不良）







1.Appearing（现象）

Old paint, spot primer or areas of filler are visible through the topcoat. The paint-work is "dappled" and uneven in colour.

旧涂层，底漆的污点可以透过面漆观察到。面漆上有斑点，颜色不均。

2. Cause（原因）

1) The substrate was not even in colour all over the painted area. 整个区域的底材颜色不均。
2) The topcoat was not thoroughly mixed before use. 面漆在使用前没有完全混合。
3) The incorrect thinner was used. 使用了不正确的稀释剂。
4) The coats of paint were too thinly applied. 稀释剂量过大

3. Solution（解法）

To obtain a good finish with good hiding power it is necessary:

为了获得好的面漆遮盖力，必须要：

1) To spray on a uniform base primer coat. 在均匀的底漆上面涂。
2) Stir the topcoat well before use. 喷涂面漆之前完全搅拌。
3) Only use the thinner stated in the instructions for use.
   按照说明使用稀释剂
4) Spray a sufficient film build of paint. The optimum film build for unicolours is 50 - 70 um , (Exception: certain lead chromate free yellow and red tones). Target optimum film build for the two coat metallic colours is 15-30 um. (Exception: certain very transparent colours). We recommend the use of tinting filler for certain colours which do not cover well due to the pigmentation used.
   保证漆膜厚度足够。合适的漆膜厚度是50-70um（不包括某些无铅黄色和红色油漆）两道金属漆的合适厚度是15-30um（不包括某些透明度高的油漆）。推荐在遮盖力弱的颜料中加入着色剂来增强遮盖力。
   If the hiding power is poor it is possible after drying to wet sand with P 800 and then refinish.
   如果遮盖力不够，可以使用P 800打磨然后重新涂装。

POPPING (气泡)







1.Appearing(现象)

In the case of this surface problem blisters occur with a fine hole in the middle.
此现象是气泡的中间出现孔洞。
The occurrence of these bubbles can have various different causes.
这种现象的气泡是由很多原因引起的。

2. Cause (原因)

1) The coats were applied too thick or heavy. 漆膜过厚或过粘。
2) The use of unsuitable thinner (too fast). 不合适的稀释剂（挥发速度过快）
3) Too short a drying time between the individual spray processes. 涂装道数之间固化时间不够。
4) Too high an object temperature to accelerate the drying. 被涂物表面温度太高。
5) Too long an air drying time for two components paints before the object is placed in the oven.
双组分油漆放入烘箱干燥之前自然干燥时间太长。
6) The use of infra red lamps can cause too high a surface temperature if the lamps are close to the object. 红外灯距离表面太近，使表面温度太高。

3. Solution (解法)

If there is only minor surface damage, sand the topcoat with P 1200 paper and then polish with fine polishing paste and a high gloss polish (silicone free). If there is greater surface damage the bubbles must be sanded down to the level where they occur and affected areas should be repainted.
小面积发生的话，用P1200砂纸打磨，然后使用合适的上光剂（无硅）面涂。大面积发生的话，必须打磨至出现孔洞的底层，再重新涂装。

SAGGING,RUNS（流挂）







1.Appearing（现象）

Sags, curtains, runs are the result of excess of paint applied on vertical surface. This type of defect often occurs when too much paint has been applied in one coat.

流挂是应用在垂直面上的油漆过量的结果，这种现象通常出现在一次涂装油漆过量时。

2. Cause（原因）

Over application of paint in areas where overlapping occurs or difficult areas are to be painted. Excessive thinning will lower the sag point. High substrate temperature can also affect this type of defect. Formulation of the paint. Application onto old, but glossy surfaces.

1、在不容易涂装或者重叠发生的区域进行油漆涂装。2、过多的使用稀释剂会降低流挂点。3、涂装时表面温度太高。4、油漆的类型。5、在旧的、光滑的表面进行涂装。

3. Solution（解法）

When the paint is still wet, use a brush to brush out the sags. If the paint is already dry. In many cases it can be left as it is. In areas where sagging of the paint forms small pools on horizontal surfaces, the paint may crack to the substrate. In such cases it might be wise to scrape the paint or sand down and reapply the topcoat.

当油漆在湿膜状态时，使用刷子刷出流挂物。如果油漆已经干了，一些情况下可以不用管它。流挂的油漆会在水平面上形成小面淤积，这些部位的漆膜会产生龟裂，在这些情况下，明智的选择是将油漆铲掉或者打磨掉，然后补漆。

WRINGKLING（皱皮）







1.Appearing（现象）

Wrinkling has and appearance of wrinkled skin. 起皱皮就是漆膜表面有皱纹。

2. Cause（原因）

The most common reasons are spills and excessive film thickness. Also temperature plays an important part during wrinkling. Application of paints in sunshine, may cause skin drying of the paint leaving the paint underneath soft.

最常见的原因是溢出物或过厚的漆膜，温度在起皱现象中也起了很重要的作用，油漆在阳光底下进行施工，就可能导致结皮现象而使漆膜内部发软。

3. Solution (解法)

The looks of a wrinkled surface may not be pleasant, but it may not reduce the corrosion resistance of the coating severely. Scraping off or sanding the surface and application of a new topcoat might be the proper corrective action.

褶皱的表层看起来不那么美观，但它对涂层的耐腐蚀性不会减小，将其表面打磨然后按照正确方法在其表面重新涂上一层面漆，也许是一种正确的举动。

OTHERS（其他）



1.Appearing（现象）

WATERMARK（水斑）

Condensation or other means of water on the surface during curing of the paint will result in spotting of the surface.

油漆固化过程中，如果表面有浓缩的或其他形式的水，将会引起水斑。

2. Cause（原因）

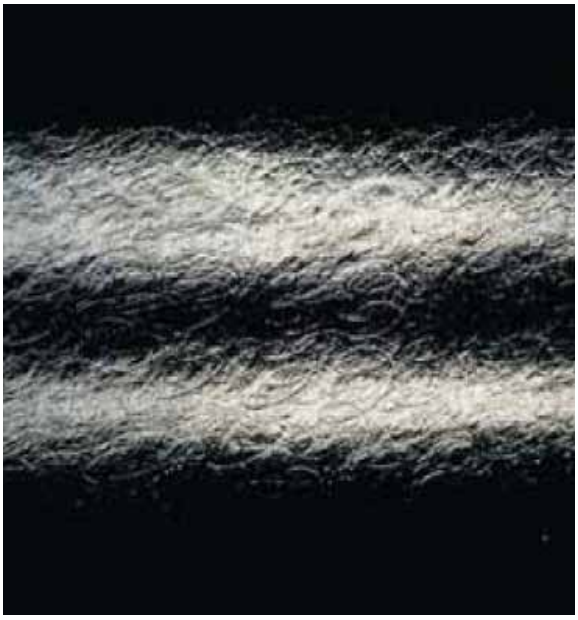
This paint defect is often encountered with blooming or blushing of paints.

Water condensing on the surface might settle on the horizontal surfaces as droplets of water. The pressure of the water droplets will result in a crater like finish on the surface. This surface defect will also become dull.

这种缺陷通常会使油漆出现喷雾和发白现象。凝固在表面 的水会落在水平面上形成水滴。水滴的重力会在表 面形成平滑的小坑，表面颜色也会显得比较暗。

3. Solution（解法） Depending on the finishing demands, this defect is more or less considered to be a cosmetic one. But sanding and reapplication of the topcoat will improve the appearance.

根据面涂要求，这种缺陷差不多是装饰性的。对面涂的砂纸打磨和重新涂装将会改善它的外观。



1.Appearing（现象）

SANDING MARK（磨痕）

Sanding marks are visible either individually or in a large number as grooves in the surface of the paint, which follow the lines of sanding operations prior to painting.

磨痕可能以独立的现象出现，也可能大面积在油漆表面以凹槽的形式沿着打磨的痕迹出现。

2. Cause（原因）

1) The primer and/or the filler was sanded with paper that was too coarse. The sanding marks then show up in the next coat of paint as small grooves in the surface of the paint.

打磨底漆的砂纸粗糙。后续的涂装上就会出现小凹槽状的磨痕。

2) The recommended drying times of primer were not adhered to. The sanding marks become visible after the drying of the paint finish sinks into the uncured primer material.

底漆固化不良。面漆陷入没固化好的底漆后，磨痕就很容易看出。

3)The use of sanding discs and papers on the car body which are too coarse, always increases the possibility of the appearance ofsanding marks.

打磨用的砂盘或砂纸粗糙，增加了出现磨痕的可能。

3. Solution（解法）

The marks in the substrate must be sanded down so that a new paint build up (Primer and topcoat) can be applied.

磨痕必须彻底打磨掉，底漆和面漆重新涂装。

OTHERS (其他)



1.Appearing(现象)

MISSING PAINT 漏涂

Occurred rust 反锈

2. Cause (原因)

In correct spray pattern. 不正确的喷涂方式

Not reached area by spray gun.

喷枪无法接触到的部位

3. Solution (解法)

correct application 正确的操作

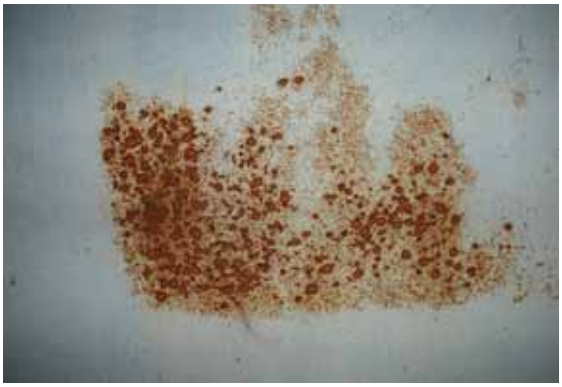
Stripe coat by brush or roller prior to spray coating.

正式喷涂之前需要预涂

VARIOUS RUSTINGS (各种锈蚀)



DESCRIPTION : Undercut corrosion
底切锈蚀



Appeared rust by blistering.
气泡引起的生锈



Appeared rust on welding line, because blister.
焊缝上由于气泡引起的生锈



Blister 气泡



Extremely rust by blister
气泡引起的严重生锈



Extemely rust by blister in ballast tank.
淡水舱中由气泡引起的严重生锈

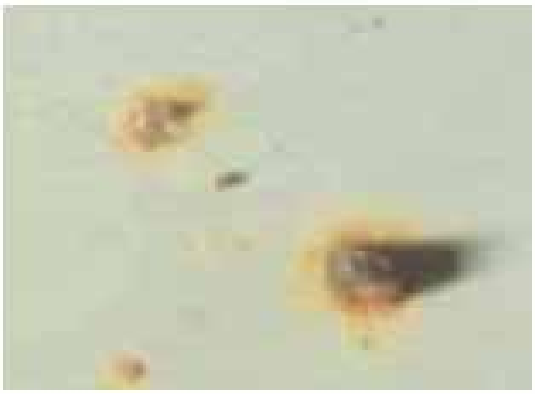
VARIOUS RUSTINGS (各种锈蚀)



Rust creep
锈斑



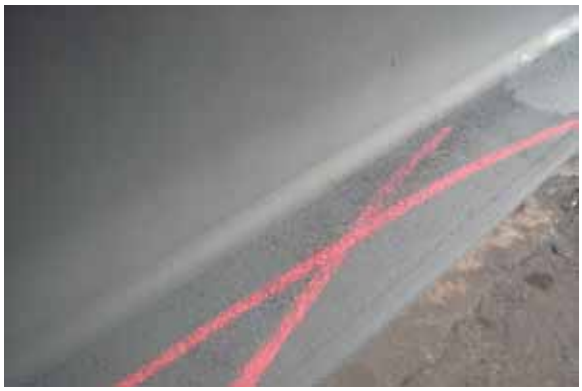
Extemely rust by holidays
漏点引起的严重生锈



Staining
渗色



Pin point rust
点锈



Not cleared coated surface
涂装表面没有清洁



Distructive coating film by impact.
冲击使漆膜破损