AUTOMOTIVE SOLUTIONS
PAINT APPLICATION GUIDE

Introduction	:	The object in applying a paint coating is to provide a film which will give protection and decoration to the surface being painted. The success of any paint application will be governed by a number of parameters, including :
Surface preparation	:	* Film thickness applied * Method of application * Conditions during application These are discussed below :
Steel	:	The importance of surface preparation to the success of a paint system cannot be overemphasized. A separate section on surface preparation has been included in this manual.
Film thickness	:	An adequate film thickness is essential for the success of any coating system. Under application will generally result in premature failure for obvious reasons. However, the old adage of "the more paint, the better" can be equally dangerous. The gross over application of modern high technology paint coatings can lead either to solvent entrapment and subsequent loss of adhesion, or to splitting of primer coats. With the majority of coatings, the limits of acceptable dry film thickness allow for reasonable practical variation, but the correct film thickness should always be the target during application. The actual dry film thickness recommended for a particular surface will depend on the type of paint system being used and the nature of the surface. Recommended dry film thickness for individual products are given on the Product Data Sheets and System Specification Sheets.
Method of application	:	The accepted methods of applying the AUTOMOTIVE SOLUTIONS – AS COATINGS are described in this manual are by brush, roller, conventional spray and airless spray. The advantages and disadvantages of each method are briefly discussed below :
Brush application	:	Brush application is relatively slow, but is generally used for decorative paints and for coating small areas. It is particularly suitable for coating complex areas where the use of spray methods would lead to considerable losses due to over spray and associated dry spray problems. However, most high build coatings are designed for application by airless spray, and high film build will generally not be achieved by brush application. In general, twice as many coats will have to be applied by brush to achieve a similar build when compared to airless spray. Brush application requires considerable care when applying non-convertible coatings over one another, e.g. chlorinated rubber over chlorinated rubber, or vinyl on top of vinyl. In these cases, the solvents in the wet coat readily re-dissolve the previously dry bottom coat. Even a mild degree of the "brushing-out" normally given to, for instance, alkaline top coats will cause pick-up of the previous coat and result in a very poor finish. Even, light strokes should be used in these circumstances, covering a particular area with one or two brush strokes, and on no account working the bristle into the previous coat.
Roller application	:	Roller application is faster than brush on large, even surfaces and can be used for the application of most decorative paints. However, control of film thickness is not easily achieved. As with brush, high film build will generally not be attained. Care must be taken to choose the correct roller pile length, depending on the type of paint and degree of roughness of the surface.
Conventional spray	:	This is a widely accepted, rapid method of paint application in which paint is atomized

		by a low pressure air stream. Conventional spray equipment is relatively simple and inexpensive, but it is essential to use the correct combination of air volume, air pressure and fluid flow to give good atomization and a paint film free from defects. If conventional spray application is not controlled correctly, large losses of paint can result from over spray and rebound from the surface, in addition to problems such as poor flow, sagging and pin holing. The major disadvantage of conventional spray is that high build coatings can generally not be applied by this method, as most paints have to be thinned to a suitable viscosity for satisfactory atomization, and so lose their high build properties.
Airless spray	:	Unlike conventional spray, air is not mixed with the paint to form a spray, hence the name airless spray. Atomization is achieved by forcing the paint through specially designed nozzles or tips, by hydraulic pressure. The required hydraulic pressure is usually generated by an air powered pump having a high ratio of fluid pressure to air input pressure. Pumps with ratios between 20:1 and 60:1 are available, perhaps the most common being around 45:1. The chief advantages of airless spray are : 1. High build coatings can be applied without thinning. 2. Very rapid application possible, giving an economic advantage. 3. Compared to conventional spray, over spray and bounce-back are reduced, leading to reduced losses of material and lessening of dust and fume hazards. The tips, through which the paint is forced to achieve atomization, are precisely constructed from tungsten carbide. The atomized “fan” of paint is produced by a slot ground on the face of the orifice. Various orifice sizes together with different slot angles are available. The choice of tip is governed by the fluid pressure required to give atomization coupled with the orifice size needed to give the correct fluid delivery rate. The fluid delivery rate controls the film thickness applied. Different slot angles produce spray fans of different widths. The selection of a particular fan width depends on the shape and size of the structure to be painted. Choice of fan width is also related to orifice size-for the same orifice size, but paint applied per unit area will be less, the wider the spray fun. Generally tips with an orifice size 0.009”-0.013” are suitable for coatings to be applied at approximately 50 microns (2 Mils) wet film thickness. Tip sizes from 0.013”-0.009” for wet films of 100-200 microns (4-8 Mils) and 0.019”-0.031” for 200 microns (8 Mils) and above. Heavy duty mastics which are applied at very high film thickness may need tips with orifices as large as 0.040” to 0.060”. There are several designs of tips available, the choice of which depends upon the finish required, the ease of application and ease of cleaning blockages from tips. With some products, the decorative effect achieved with airless spray is not as good as can be achieved by conventional spray. However, airless spray application is now widely accepted as a convenient method of applying high performance and decorative coatings.

AUTOMOTIVE SOLUTIONS
SURFACE PREPARATION GUIDE

THE NEED	:	There are two main factors which govern the performance of a protective paint system, mainly the nature of the paint coating and the degree of cleanliness of the surface to which it is applied. THE OPTIMUM PERFORMANCE OF ANY PAINT COATING IS DIRECTLY DEPENDENT UPON THE CORRECT AND THOROUGH PREPARATION OF THE SURFACE PRIOR TO COATING. THE MOST EXPENSIVE AND TECHNOLOGICALLY ADVANCED COATING SYSTEM WILL FAIL IF THE SURFACE PRE-TREATMENT IS INCORRECT OR INCOMPLETE.

COMMON SURFACE CONTAMINANTS

	1	Oil & Grease- Deposited from the working environment. Use “ OIL REMOVER”
	2	Mill scale - Oxide formation from the hot rolling process at the steel mill.
	3	Corrosion products - Rust and scale formed on unprotected steel.
	4	Soluble salts - Deposited from the atmosphere.
	5	Laitance - On concrete.
	6	Zinc Salts - On galvanized surface.
		The removal of such contaminants is essential for optimum performance and the following notes cover methods of removal.
A. FOR STEEL	:	Some of the various methods of surface preparation of steel are briefly described below for more explicit details and recommendations please refer to full specifications, such as : Indian Standard-IS : 1477 (Part I & II) 1963.
	1	Steel Structures Painting Council (SSPC), Pittsburgh, PA, USA.
	2	British Standards Code of Practice BS 5493 and DIN 55928 for Protective Coating of Iron and Steel structures against Corrosion.
	3	Swedish Standard SIS 05 59 00 (1967 - Pictorial Surface Preparation Standards for Painting Steel Structures).
	4	Shipbuilding Research Association of Japan-Standard for the preparation of Steel Surfaces Prior to Painting (“SPSS” Standard).
1 OIL & GREASE 1. Degreasing :	:	All Oil, Grease, Drilling and Cutting Compounds and other Surface Contaminants if present even in trace quantities this may impair the adhesion of protective paint systems and lead to premature failure. Removal by solvent swabbing is common; however, it is essential that the deposits are removed and not simply spread over the surface. A jumber of washes using clean solvent and swabs is essential. AUTOMOTIVE SOLUTIONS Thinner may be used as per recommendation given in individual Data Sheet. Degreasing procedures are described in SSPC-SP1
2. MILLSCALE	:	This layer of Oxides although initially intact readily embitters and flakes off bringing with it the paint system. Numerous methods of scale removal have been used.
1. Natural Weathering :		This is an unreliable practice as the surface will remain contaminated with soluble salts and corrosion products.
2. Hand Tool Cleaning :		The degree of cleanliness achieved is largely dependent upon the amount of weathering to which the steel has been subjected, and the efforts of the operators who have difficulty maintaining a constant satisfactory standard. It is impossible to remove all rust and mill scale by this method. Generally this method would be adopted for the following : Maintenance Painting. A. Easily Accessible Steel works in Rural Areas. B. Steelwork inside Building where conditions are Non-corrosive. C. Steelwork which is to be encased in brickwork, concrete, etc. D. Internal Surfaces of enclosed spaces that require Painting. Methods for hand Tool Cleaning are described in SSPC-SP 2 and should be to Swedish Standard St.2-B, C or D.
3. Power Tool : Cleaning		Although impact tools such as chipping hammers and needle guns are reasonably effective in removing rust and scale the time and effort required is excessive. Power rotary wire brushes and grinding tools wear away the unwanted surface layer. This method tends to burnish the surface especially where firmly bonded scale exists.

		The burnished surface effectively reduces the adhesion properties of the primer. Other unfavorable factors are excessive noise levels and dust hazard. Generally this method would be adopted on maintenance painting where areas require remedial treatment. Methods are described in IS: 1477 (Part-I)-1963, in SSPC - SP 3 and should be to Swedish Standard St 3 - B, C or D.
4. Flame : Cleaning		When flame cleaning, a high temperature oxyacetylene flame is passed over the surface. Scale and rust are dislodged partly by differential expansion of the steel and scale and partly by evolution of steam from moisture within the rust. Scraping and wire brushing is necessary to remove the burnt residues. The methods for flame cleaning are outlined in IS: 1477 (Part-I)-1963. A. Fire and Health Hazard. B. Possible damage to adjacent areas. C. Steel must be at least 16 gauges thick to avoid buckling. D. Steel temperature must not exceed 300 deg. C. E. Use prohibited on high strength friction grip joints and adjacent areas.
5. Acid Pickling :		Mill scale and rust can be removed by immersion in acid solution such as sulphuric or hydrochloric. The pickling carries out its function in two different ways. First, the acid serves to dissolve both scale and rust. Secondly, as the acid creeps into the breaks of the mill scale a reaction between the innermost layers of mill scale and the acid evolves hydrogen gas. This gassing results in the mill scale popping off. Following a hot water rinse the steel is often depending in both containing a solution of phosphoric acid. The phosphoric acid reacts with the steel to form a thin film of iron phosphate which acts as a rust inhibitor. A coat of priming paint should be applied as quickly as possible after drying. The main disadvantages to this method are : A. A wet process with effluent and fume control requirements. B. Unsuitable substrate for metal spray and many two pack systems. C. A workshop operation with work limited to size of baths. Generally, pickling is done by specialist firms. D. Process not suitable for structural steel or large objects.
6. Abrasive : Blast Cleaning		Prior to blast cleaning any obvious surface defects in the steel such as lamination, shelling, weld spatter, etc. should be removed by chipping or grinding. Any defects unobserved prior to blast cleaning and priming should be treated at the priming stage and touched up as necessary. Where steel has been allowed to rust extensively, longer times for blast cleaning may be required. It is therefore advisable to blast clean prior to rusting whenever practicable.
	a	ABRASIVE BLAST CLEANING describes all methods used to project an abrasive on to the object e.g. air blasting, centrifugal blasting, or water/sand blasting. During the course of development this type of cleaning has been given several different names, e.g. sand blasting, shot blasting and grit blasting, depending upon the abrasive used. For details of sand blasting procedure refer to IS: 1477 (Part-II)-1963. To avoid any confusion it is recommended to use the term "Blast Cleaning". ABRASIVE BLAST CLEANING IS THE PREFERRED METHOD OF PREPARING STEEL AS RUST, MILLSCALE AND OLD PAINT COATINGS ARE EFFECTIVELY REMOVED.

TABLE OF INTERNATIONAL STANDARDS OF ABRASIVE BLAST CLEANING

Description	White Metal	Near-White Metal	Commercial Blast	Brush-off Blast
Swedish Standard SIS 05-5900 : 1967	Sa3	Sa 2 1/2	Sa2	Sa1
British Standard BS 4232 : 1967	First Quality	Second Quality	Third Quality	-
Steel Structures Painting Council (U.S.A.)	SSPC-SP 5-63	SSPC-SP 10-63T	SSPC-SP 6-63	SSPC-SP 7-63
National Association of Corrosion Engineers (U.S.A.)	NACE No. 1	NACE No. 2	NACE No. 3	NACE No. 4
Shipbuilding Research Association of Japan SPSS	JASh3 JASd3	JASh2 JASd2	JASh1 JASd1	- -
Canadian Government CGSB	31GP404 Type 1	-	31GP404 Type 2	31GP404 Type 3

The Swedish Standard, as it was usually called, was first to employ pictorial representation as of the specified cleaning degrees.

It is now superseded by INTERNATIONAL STANDARD ISO 8501-1:1988. Yet with the same photos as used by the SIS standards plus additionally four photos (Flame Cleaning) from the German Standard DIN 55928, Part-4, and Supplement 4.

The British Standard uses drawings to indicate the (Second and Third quality) finishers, whereas the American and the German Standards use the same photos as ISO 8501-1- : 1988. Yet, DIN 55928 includes photos of secondary surface preparation too.

Except for BS 4232 they all take into account the state of the raw steel surface before cleaning and grade the result accordingly.

A. Steel surface largely covered with adherent mill scale but little, if any, rust.
B. Steel surface which has begun to rust and from which the mill scale has begun to flake.
C. Steel surface on which the mill scale has rusted away or from which it can be scraped, but with slight pitting visible under normal vision.
D. Steel surface on which the mill scale has rusted away and on which general pitting is visible under normal vision.

The blast cleaning provides a roughened surface with the surface amplitude or profile (peak to trough) being reasonably controlled by the amount of air pressure and the type and size of abrasive used. It is important that the surface profile be considered in relation to the dry film thickness (dft) and type of primer involved especially if the primed steel is to the subjected to exterior locations. The following table gives a brief guide to typical roughness profiles obtained using various types of abrasive.

Type of Abrasive	Mesh Size	Max. height of Profile
Very fine sand	80	37 Microns (1.5 Mils)
Coarse Sand	12	70 Microns (2.8 Mils)
Iron Shot	14	90 Microns (3.6 Mils)
Typical non-metallic "Copper-slag" 1.5-0.2mm grain size	-	75/100 Microns (3-4 Mils)
Iron grit No. G16	12	200 Microns (8.0 Mils)

	b **c**	VACUUM BLASTING : Ideal for small repair areas, welds, etc. The abrasive is collected for re-use by shrouding the blasting nozzle with a vacuum hood. The mixed abrasive and debris pas through a separating device before the filtered abrasive is returned to the blasting circuit. WET ABRASIVE BLASTING : The abrasive is carried to the work surface in a stream of water. It is necessary to use non-metallic abrasives. Corrosion inhibitors may be added to the water to delay re-rusting of the steel. The amount and type of inhibitor additions must be strictly monitored to ensure that the adhesive properties of the paint coating are not impaired. Too much inhibitor may have the same effect as leaving corrosion products on the surface thus reducing the adhesion of the paint system to the surface. The prime advantages of this method are : A. The hazards of dust and associated health problems are largely overcome. B. The changes of fire hazards are eliminated; enabling its use inside working installations.

Fresh water hosing/cleaning (FWH/FWC): Up to 60 bar/860 psi
High pressure fresh water hosing (HPFWH): 60-200 bar/860-2900 psi
High pressure fresh water blasting (HPFWC): 200-350 bar/2900-5000 psi
High pressure fresh water blasting (HPFWB): 350-1000 bar/5000-14500 psi
Hydro blast (HB)/fresh water jetting (FWJ): Above 100 bar/14500 psi

3. CORROSION PRODUCTS : 4. SOLUBLE SALTS :		Blast cleaning times should be extended to cater for the more difficult removal of rust. These are commonly encountered on steel that has been allowed to rust in a polluted atmosphere. Removal of salts formed in pits is difficult but essential if premature failure is to be avoided. The use of wet blasting is advised. Careful control by visual and chemical means is advocated. Blast cleaning is strongly recommended in all cases where high quality long life expectancy systems are called for,
B. FOR NON-FERROUS METALS Aluminium :		The following recommendations for non-ferrous metals, including galvanized steel, will provide the proper surfaces on which to apply coating. Solvent was to remove organic matter. For some systems, either a chromates or phosphate pre-treatment is recommended. For other systems, they may be applied directly to aluminium if an anchor pattern is provided by brush-blasting. Application of an etch primer, viz. AS WASH PRIMER 401 or AS EPOXY PRIMER 2020/ 2030 is recommended before painting. **Note:** Blasting is never used on sheet aluminium because of the warping which may occur.
Galvanized Metal :		New galvanized metal often comes from the mill or supplier with light, invisible coating of cosmoline or other material to keep it bright. This must be removed by solvent washing. Weatherized galvanized metal may have remnants of the brightener remaining or a light skiff of zinc oxidation products, depending on the length of exposure, solvent washing is effective in removing these potential bond-breakers. Application of an etch primer, viz. AS WASH PRIMER 401 or AS EPOXY PRIMER 2020/ 2030 is recommended before painting.
Stainless Steel & Other Alloys :		Solvent wash to remove oil and grease. Brush blasting to provide a suitable anchor pattern is most often recommended depending on the mill finish. Bright, polished stainless steel and other polished metals can be a problem unless an anchor pattern is provided.
C. CONCRETE &		Failure of coating on concrete and masonry is often caused not so much from a failure of

MASONRY :		adequate surface preparation as from a construction configuration which allows moisture to wick into the concrete from behind, above or below, and become trapped behind the coated surface. Unless vapor barriers or stops are built-in where concrete is below or on grade or where concrete floors are used as the base for laid-up block or bricks, etc., coating performance will be jeopardized. Expansion joints are present to accommodate the movement of concrete or masonry structures and should not be coated over as part of the single continuous film which covers the adjacent areas.
Methods	:	The most efficient method of preparing concrete for coating is by sand blasting. This eliminates form release agents, removes surface laitance, revels air pockets and creates an anchor pattern. Where sand blasting is not possible or practical, these general recommendations should be followed :
	1	Remove dust, dirt, oil, grease and form release agents. This can usually be accomplished by scrubbing with a strong alkaline detergent.
	2	Check for voids which will often be only small openings in the surface with larger voids beneath. Large voids should be filled with latex concrete or cement grout (2 parts cement to 1 part fine sand). Voids left in the surface may result in bridging by the coating and subsequent failure when the trapped air expands. Etch the surface with a solution of 1 part commercial hydrochloric acid in 2 parts water. Allow the acid solution to “work” for 5-10 minutes, and then thoroughly flush the surface will water and allow drying thoroughly. This will neutralize laitance and efflorescence and provide a slight anchor pattern. This treatment is really only practical for floors or horizontal surfaces. Vacuum cleaning of the surface is recommended before painting.

AUTOMOTIVE SOLUTIONS
GUIDE (EXPLANATION) TO PRODUCT DATA SHEETS

GENERIC TYPE : A short description of product: whether it is single pack or two pack.

COMPOSITION : Description of resin, pigment and other raw material used in the product.

RECOMMENDED USE : The purpose(s) for which the product is designed or particularly well suited. The product may be specified for other uses in tailor-made paint systems for specific purposes.

PHYSICAL CONTENTS

COLOURS : See Shade numbers. Certain Physical constants may vary from one color to another.

FINISH : the appearance of the paint film after drying under optimum conditions, given as high gloss (>90), glossy (60-90), semi-flat (15-30),or flat (<15). All figures are according to ASTM D 523-67 (specula gloss, 60 degree geometry). The actual appearance will depend on the conditions during application and drying/curing. Our products are available in stipple and texture finish also.

DRY FILM THICKNESS/WET FILM THICKNESS (Abbreviation = dft or wft). : The dry film thickness indicated in our data sheets is the minimum recommended for protection.

The minimum dft of a paint system (also a one coat system) should not be less than specified whilst for individual coats the average dft shall not vary by more than 20 %. This explains in part the difference between theoretical and practical covering capacity. The dft can be calculated from the applied wet film thickness :

$$dft = \frac{wft \times \%\ volume\ solids}{100} \qquad wft = \frac{dft \times 100}{\%\ volume\ solids}$$

SOLID CONTENT BY VOLUME : The volume Solids (VS) figure expresses in the percentage ratio :

Dry Film Thickness

Wet Film Thickness

The stated figure has been determined as the ratio between dry and wet film thickness of the coating applied in the indicated thickness under laboratory conditions, where no paint loss has been encountered.

The method of determination follows the rules of ISO 3233/ASTM D 2697, yet by drying at 20 deg. C. /68 degree F and 60 % relative humidity for 7 days instead of drying at higher temperatures.

Volume solids are usually slightly higher than the theoretical value, which is found by a calculation based on the paint composition taking specific gravity and solid content of each individual raw material into consideration.

Volume solids are in better argument with practical measurements of dry film thickness than the theoretical value.

THEORETICAL SPREADING RATE : The theoretical spreading rate of the given dft on a completely smooth surface is calculated as follows :

$$\frac{volume\ solids\ \% \times 10}{dry\ \ film\ \ thickness\ \ (micron)} = sq.mtr./ltr.$$ or

$$\frac{volume\ solids\ \% \times 16.3}{dry\ \ film\ \ thickness\ \ (micron)} = sq.\ ft./US\ \ gallon$$

1 mil is rounded off to 25 micron

- The exact value is 25.4 micron.

In the product data sheet the theoretical spreading rate is stated for an indicated dft that is usually specified for the product. Some products may be specified in different dft for different purposes affecting the spreading rate accordingly. Theoretical spreading rate cannot be given for paint materials used for saturation of an absorbing substrate, wood, concrete, etc.

PRACTICAL SPREADING RATE : The Practical spreading rate is not given in the product data sheet as the variation is too

		great to be represented by one single figure. The Practical consumption is estimated by multiplying the theoretical consumption with a relevant consumption factor (CF). The consumption factor cannot be stated in the product data sheet as the variation is too great to be represented by one single figure. $\text{Practical Consumption} = \frac{Area \times CF}{\text{Theoretical Spreading Rate}}$ The variation in the consumption factor is largely attributed to the following :
	1	Waviness of the surface to be coated and of the paint surface itself leads to a higher consumption in order to reach the specified minimum total thickness of the system.
	2	Roughness of the substrate to be painted gives a “Dead Volume” to be filled up or for shop primers a “Surface Area” greater than one.
	3	Physical losses, such as left-over’s in cans, pot-life exceeding, wind loss, loss during cleaning of equipment, etc. The practical spreading rate thus varies with method of application, skill of the printer, shape of the object to be painted, texture of the substrate, film thickness applied, any working conditions. It is therefore not possible to give a universally valid figure. In any case it is not beneficial to stretch the paint as much as possible, but rather try to obtain the specified thickness of the applied paint on the entire area.
FLASH POINT	:	The lowest temperature at which a liquid liberates sufficient vapor to form a mixture with the air near its surface which, if ignited, will make a small flash, but not catch fire. The flash points of AUTOMOTIVE SOLUTIONS paints are measured according to the A Pensky method (closed cup). For two-component products flash points are normally given for the mixed products. The figures are given as guidance with a view to local regulations for precautions against fire during use. Substantial changes owing to reformulation will be followed by the issue of a revised product data sheet.
DRYING TIME	:	The drying time of the product in the product data sheet is “Dry to touch” unless otherwise indicated.
DRY TO TOUCH	:	A slight pressure with a finger does not leave a mark or feel sticky.
DRY TO HANDLE	:	The paint surface is sufficiently hardened to be handled with care without coming off/being damaged. The drying process until “Dry to touch” is - for solvent (or water) containing paints-first and foremost dependent on ventilation. Furthermore it depends on the temperature and on the film thickness of each coat applied. For physically drying paints the drying time is also influenced by the number of coats and the total film thickness of the system.
FULLY CURED	:	The curing time is given for two component products at 20 deg. C. The curing is accelerated at higher temperatures and retarded at lower temperatures. For some products the curing times at different temperatures are given as a table in the product data sheet. For products where the curing time is given at 30 deg. C. only, the following rough rule of thumb can be utilized. The curing time is halved at an increase in temperature of 10 degree. C. and doubled at a decrease in temperature of 10 degree C. Curing will stop almost completely below the temperatures stated under APPLICATION CONDITION as the lowest temperature at which the paint should be applied.
SHELF LIFE	:	The time the product will keep in good condition when stored under cover in original, sealed containers under normal storage conditions. Shelf life is indicated only if it is one year or less at 20 degree C. It will usually decrease at higher temperatures. In general paint should not be stored for more than 1 year (20 degree C.).

APPLICATION DETAILS

MIXING RATIO	:	Two components, chemically curing products are supplied as BASE and HARDENER in the correct mixing ratio. The mixing ratio must be strictly adhered to, also when sub dividing. Add the HARDENER to the BASE 10-15 minutes before use (at 20 deg. C.), unless the pot life is very short, and stir well. It is very important for two component products that the prescribed amount of hardener is added to the base. In order to ensure this the indicated thinner may in most cases beneficially be used to flush the hardener. Once the material has been mixed the curing will proceed. Therefore, only the quantity

		needed within the pot life of the mixture should be mixed at a time. Written on all our Products
APPLICATION METHOD	:	Gives the possible recommended method(s) of application. As a general rule the first coats of a rust preventing primer should be applied by brush or airless spray to obtain best possible wetting and penetration into the substrate. Application by brush or roller usually demands more coats applied to achieve the specified film thickness than application by spray equipment.
THINNER (MIX.VOL.)	:	Automotive Solutions paints are delivered in such a way, that they are ready for application by brush or airless spray after mixing of base and hardener and/or stirring if the paint is too thick e.g. in cold weather or for special purposes, the THINNER(S) indicated under this heading may be added to give the required viscosity. The amount of thinner to be added depends on prevailing temperature, spray method. The usual maximum percentage is indicated for the respective application method. If more thinning is deemed necessary under special circumstances, consult Automotive Solutions Adding a small percentage of thinner will give no measurable difference in the film thickness. There are cases, however, when a higher degree of thinning is necessary and justified. It should then be kept in mind that adding thinner increases the quantity of liquid paint with contributing to the solids content. Consequently, a proportionally higher wet film thickness must be applied when adding significant amount of thinner in order to obtain the specified dry film thickness. $VS\ \%\ after\ thinning = \frac{VS\ \% \times 100}{\%\ THINNER\ ADDED + 100}$ **NOTE:** Avoid unnecessary e.g. habitual thinning.
POT LIFE	:	Once the base and hardener has been mixed, the curing will proceed and after certain period it will become very viscous or gel, the time from mixing to gel is called POT LIFE. **NOTE:** Pot life cannot be extended by thinning.

INDICATED FILM THICKNESS

WET	:	Wet film thickness (wft) is indicated in multiple of 25 micron (1 mil) in order to facilitate the practical measurements with net wet film thickness gauge (comb gauge). These values are rounded off to the multiple of 25 which is regarded most relevant in each case.
DRY	:	Dry film thickness (dft) is indicated in a thickness frequently used in specifications.
OVERCOATING	:	The time required or allowed to pass at 30 deg. C. before the subsequent coat is applied. The intervals are related to the temperature, film thickness, number of coats, type of future (in service) exposure and will be affected correspondingly. For maximum intervals the temperature in this context is the highest surface temperature during the period. For some products the interval is more critical in regard to inter coat adhesion than others. If the maximum interval is exceeded it may be necessary to roughen the surface to ensure adhesion of the next coat. On the other hand, for some paint types the interval may not be critical in respect of adhesion, but a primer coat should not be left unprotected for too long in an aggressive environment. If nothing else is mentioned the indicated intervals refer to re-coating with the same paint. Other paints of different types may require other (over coating) intervals. After exposure of any painted surface in polluted environment through cleaning by high pressure fresh water hosing or another appropriate measure is always recommended before over coating. Details about recoat and over coating intervals are stated relevant painting specification.

IN CASE YOU ARE NOT CONFIDENT ON RIGHT PRODUCT SELECTION OR APPLICATION CALL US at +91 9350042380 . WE WOULD BE HAPPY TO HELP YOU.