

# ACRYLIC LAQUER TINTING SYSTEM INFORMATION



## DON'T DELAY IT - MOTOSPRAY IT!

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### MOTOSPRAY ACRYLIC AUTOMOTIVE PAINT SYSTEMS INFORMATION BOOKLET

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Updated November 2009

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For additional information ring the HiChem \ MOTOSPRAY Helpline on (03) 9796 3034.

This service is available 8:00 am until 5:00 pm Monday-Thursday, 3:00 pm Fridays.

Updated versions of this booklet may be found at www.hichem.com.au

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## AUTOMOTIVE ACRYLIC LACQUER TINTING SYSTEM

#### TINTER NUMBERS AND DESCRIPTIONS

M01	Rich Red
M02	Reduced Light Oxide
M03	Reduced Perm Green
M04	Coarse Metallic
M05	Permanent Green
M06	Yellow Ochre
M07	Mid Yellow
M08	Black
M09	Reduced Black
M10	Reduced Ochre
M12	Green Blue
M13	Medium Metallic
M14	Fast Red
M15	Light Oxide
M16	Mid Blue
M18	Lime Green
M19	Bright Metallic
M20	Magenta
M21	Reduced Mid Blue
M22	Yellow Gold
M23	Red Gold
M24	Bright Gold
M25	Maroon Base
M26	Micro Medium Metallic
M27	Bright Orange
_	

1420	V 1 . D1
M28	Verdant Blue
M30	Deep Blue
M31	Violet
M33	Green Gold
M34	Tinting White
M35	Dark Oxide
M37	Rich Brown
M38	Bright Yellow
M39	Deep Black
M40	Transparent Maroon
M41	Rich Maroon
M42	Organic Orange
M45	Diamond Metallic
M46	Red Maroon
M47	Topaz Yellow
M48	Aluminium Medium Coarse
M49	Aluminium High Sparkle
M50	Aluminium Extra Fine
M51	Aluminium Fine
M52	Bright Red
M53	Garnet Red
M63	Maroon
M67	Aluminium Medium Fine
M69	Tone Control
M237	Binder
UFB	Universal Flatting Base

#### SPECIAL EFFECT TINTERS

301	SE White Pearl
302	SE Light Green Pearl
303	SE Russet Pearl
304	SE Silver Grey Pearl
305	SE Yellow Pearl
306	SE Red Pearl
307	SE Blue Pearl
308	SE Lilac Pearl
309	SE Satin White Pearl
310	SE Light Blue Pearl
311	SE Blue Green Pearl
312	SE Rich Gold Pearl

313	SE Red Brown Pearl
314	SE Iris Blue Pearl
315	SE Blaze Red Pearl
316	SE Plum Pearl
351	SE Special White
317	ZR Radiant Red
318	ZR Galaxy Blue
319	ZR Sunbeam Gold
320	ZR Crystal Silver
321	ZR Fireside Copper
322	ZR Stellar Green

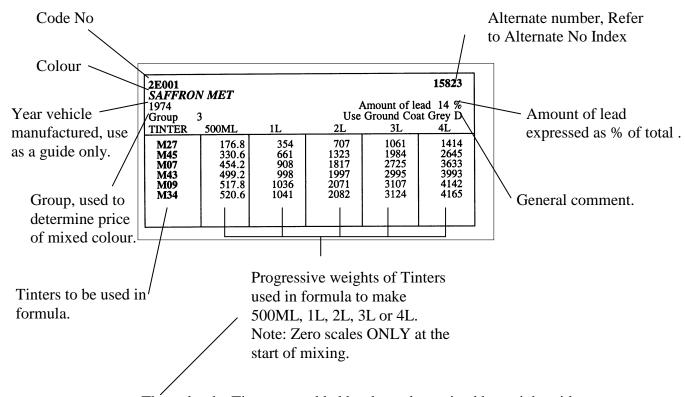


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#### HOW TO DECIPHER THE COLOUR FORMULATION

#### **GMH** Vehicle company



The order the Tinters are added has been determined by weight with the largest going in first. This has been done to enhance scale accuracy with small additions



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#### **HOW TO MIX COLOURS**

- 1. Identify the colour by the vehicle manufacturer's code which can be found on the vehicle identification plate. See our guide on page 6 for the location of the plate. Sometimes codes will be listed under another make of vehicle. See listing on pages 7 and 8.
- 2. Stir all tinters.
- 3. Label an empty can with full details of colour name, ID, make and year, lead content.
- 4. Place empty can of appropriate size on the scales and press ZERO.
- 5. Weigh each successive tinter in the formulation up to the figure appearing against that tinter. DO NOT re zero the scales at each addition.
- 6. Stir mixed paint.
- 7. A test panel should be sprayed and compared to the vehicle prior to repair. Adjust the colour if necessary, refer to page 9 for tips on adjusting colours..

#### **OTHER HINTS:**

- Stir all new cans of tinters by hand using a wide blade spatula and lift any sediment from the bottom of the can before inserting the stirring paddles.
- Stir all tinters daily.
- Keep tinters tightly sealed.

#### **POSSIBLE SOURCES OF COLOUR MISMATCH:**

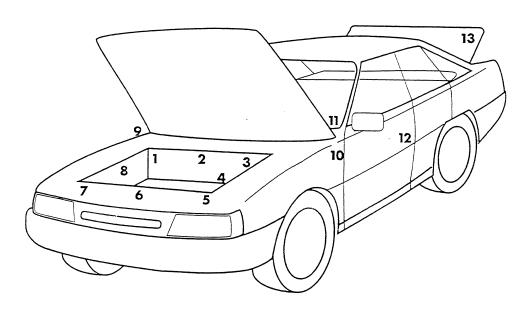
- irregular or insufficient stirring of tinters.
- solvent evaporation from tinters if they are poorly sealed.
- mixing errors due to operator or faulty or poorly maintained scales.
- variant colour originating from vehicle manufacturer.
- weathering of original paint. Most finishes fade, although some darken.
- previous repair or respray which is slightly off shade.
- different paint systems. For example an acrylic mono metallic will cause difficulties when repairing a 2 pack basecoat/clearcoat finish.
- application problems such as inappropriate ground coat, low film build, and inappropriate spray techniques with metallics.



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## LOCATION OF COLOUR INDENTIFICATION PLATES AND STICKERS



ALFA ROMEO AMI AUDI AUSTIN	1, 3 4, 6, 13	LANDROVER LEYLAND LOTUS MAZDA	1, 3
BMW	1, 3 1, 6, 8 1, 3, 4 1, 2, 3,11,12,13 1, 2, 3, 7, 8, 13 2, 3, 4, 8 1, 3 12 2, 3, 6 6, 12 6 3, 4, 8 2, 4, 6	MITSUBISHI NISSAN PEUGOT PORSCHE	1, 2, 3, 4, 5,7,12 2, 4, 6 3, 4, 5 6, 9, 12, 13 1, 6, 7, 8, 13 8 3, 8 4, 6, 13 2, 8 6 1, 2, 5 1, 3, 4, 8 3, 4, 11, 12

## Mi-Tech Protective Coatings

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#### **CAN'T FIND A CODE?**

For the following reasons you may find a code and formula listed under a different vehicle manufacturer.

- 1. Some vehicles are "rebadged" for another manufacturer.
- 2. Company takeovers.
- 3. Assembly of vehicles in another manufacturer's plant.

Alfa Romeo

AMI/ Toyota / Triumph

Audi / Fiat / Lancia / Peugeot / Renault / Subaru / Volkswagen

**BMW** 

Chrysler (see Mitsubishi)

Citroen

Daihatsu

Datsun (see Nissan)

Ferrari

Fiat / Audi / Lancia / Peugeot / Renault / Subaru / Volkswagen

Ford / Mazda / Nissan

- Telstar = Mazda 626
- Laser = Mazda 323
- Maverick = Nissan Patrol
- Corsair = Nissan Pintara

#### **GMH**

- Holdens
- Barina = Suzuki Swift up to 1994
- Commodore = Toyota Lexcen
- Nova = Toyota Corolla
- Apollo = Toyota Camry
- Many GMH vehicles are marked with a 5 digit code. Refer to the alternate number index to obtain vehicle manufacturers code.

Honda / Rover

Humber (Rootes) (see Leyland)

Hyundai

International Harverster (IHA)

Isuzu (see GMH)

## Milech Protective Continue

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Jaguar/ Daimler / Rover / Leyland

Jeep

Lada

Audi / Fiat / Lancia / Peugeot / Renault / Subaru / Volkswagen

Landrover (see Rover)

Leyland = AMI / Austin / Morris / Triumph / Humber / Jaguar / Daimler / Rover

Maserati

Mazda / Ford

Mercedes Benz

Mitsubishi includes Chrysler

Nissan / GMH

- Nissan has run two 3 digit series. The local series is usually preceded by the letters CLR. Imported vehicles have only the 3 digits. On occasions the CLR may not appear when it should and vice versa
- Some vehicles have a 5 digit code. Refer to the alternate number index.

Niva (see Lada)

Peugeot / Renault / Subaru / Volkswagen / Audi / Fiat / Lancia

Porsche / SAAB / Skoda

Renault / Subaru / Volkswagen / Audi / Fiat / Lancia / Peugeot

Rolls Royce

Rover / Honda / Jaguar / Leyland

SAAB / Porsche

Subaru / Volkswagen / Audi / Fiat / Lancia / Peugeot / Renault

Suzuki / GMH

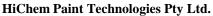
Toyota / GMH

Lexcen = Commodore

Triumph / Leyland / AMI

Volkswagen / Audi / Fiat / Lancia / Nissan / Peugeot / Renault / Subaru

Volvo / Nissan/Volkswagen.



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#### HANDY GUIDE FOR GENERAL EYE-MATCHING

#### **IMPORTANT:**

To achieve better colour matches, follow these hints carefully when hand tinting mixed colours.

- 1 Use the MOTOSPRAY TINTING SYSTEM FORMULAS as a guide, and <u>use only tinters used in the actual formula</u>.
- 2 Tinters must be mixed thoroughly before using.
- To avoid costly wastage, tint a smaller quantity first as a guide, before tinting full amount required. Move decimal point one place on a 500ML formula and make 50gm.
- 4 Stir mixture thoroughly after each tinter addition.
- To achieve optimum match comparison, <u>mixed paint must be sprayed to full coverage</u>, allowed to dry, then comparison made with a polished section of the vehicle. If matching single layer metallic or original basecoat/clearcoat colours, the test panel must also be coated with MOTOSPRAY TOP COAT CLEAR before checking against vehicle finished colour.
- With metallic mixed paints always use the "spray to colour" principles to achieve correct colour, in preference to tinting. Colour can be changed by spraying wet (darker) or dry (lighter).
- 7 It is worthwhile remembering that light oxide, yellow ochre and white will lighten or "wash out" the flip or side view of metallic paints.
- 8 Metallic tinters will lighten the front view far more than the side view.

#### FOR ALL COLOURS

To make lighter	Add - M34	TINTING WHITE
To make darker	Add - M09	REDUCED BLACK
• To increase metallic effect and lighten colour	Add - M04 - M13 - M19 - M26 - M45	COURSE METALLIC MEDIUM METALLIC BRIGHT METALLIC MICRO METALLIC DIAMOND METALLIC

• PLEASE NOTE: Always stick to tinters used in formula to avoid metameric match.

Do not use tinters for final finish top coats.

The only tinters suitable as top coat finishes are:

M04, M13, M19, M26, M45 METALLICS M08, M39 BLACKS M07, M38 YELLOWS M52 BRIGHT RED M34 TINTING WHITE



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#### **TINTER GUIDE**

#### TINTER No. and NAME

M01 Rich Red - Blue toned red. High tint strength with semi transparent.

Provides a clean red face and light clean flop in metallic and increase opacity

in red micas

M02 Reduced Light Oxide - Yellow tone red oxide. Reduced form of M15.

M03 Reduced Permanent Green - Blue toned green. Reduced form of M05.

M04 Coarse Metallic - Coarser than M26. Lighter on the flip.

M05 Permanent Green - Blue tone green with high tint strength and good opacity.

M06 Yellow Ochre - Red tone yellow oxide, high tint strength and good opacity.

M07 Mid Yellow - Clean red tone lead chrome with high tint strength and good opacity. Lead

content 28% on dried film.

M08 Black - Red tone black, high tint strength and high opacity.

M09 Reduced Black Red tone black. Reduced form of M08. Used to tint off whites and

improve formula accuracy.

M10 Reduced Ochre - Red tone yellow oxide. Reduced form of M06. Used to tint off whites and

improve formula accuracy.

M12 Green Blue - Clean green tone blue. Gives a red tone on flop in

metallics. Greener than M16. High tint strength.

M13 Medium Metallic - Fine particle size with slightly lead/grey appearance.

M14 Fast Red - Clean red tone non-lead orange. High tint strength and good

transparency.

M15 Light Oxide - Yellow tone red oxide. Provides a light red flip to metallics.

High tint strength and excellent opacity.

M16 Mid Blue - Clean red tone blue. Provides very red flop in

metallics. High tint strength..

M18 Lime Green - Yellow tone green. High tint strength and excellent transparency.

M19 Bright Metallic - Coarser, but brighter than M04, with a light flop.

M20 Magenta - A blue toned red with high tint strength. Provides a light bluish flop in metallics.



M42 Organic Orange

M45 Diamond Metallic

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M21 Reduced Mid Blue - Clean red toned blue. Reduced form of M16. Used to tint off whites and improve formula accuracy. M22 Yellow Gold - Yellowier than M06 when reduced with white. High transparency gives metallics a bright face and very dark flop M23 Red Gold - A clean yellow tone red oxide with high tint strength and very good transparency. Gives a dark flop in metallics. M24 Bright Gold - Clean red tone lead-free yellow and provides transparency in metallics. M25 Maroon Base - Browner, yellowier and redder tone than M37, with high transparency. Produces a redder low angle flip in metallics. M26 Micro Metallic - Coarser but brighter with a cleaner face and darker flip than M13. M27 Bright Orange Clean red tone lead orange with high opacity. Do not use in metallics. Lead content 22% on dried film. M28 Verdant Blue - Similar tone to M16 but gives metamerism and gives a very green low angle flip in metallics. M30 Deep Blue - Very red tone blue. Duller than M16. Red low angle flip in metallics. M31 Violet - Clean blue tone violet with medium transparency. M33 Green Gold - Reduces to clean yellow with white. Good transparency and tint strength. Tinting white. Used for whites and pastel shades. Improves opacity of yellows. M34 Tinting White M35 Dark Oxide - Red oxide with blue reduction in whites. High tint strength and good opacity. M37 Rich Brown Blue tone brown. Gives a dark brown low angle flip in metallics. - Clean lead chrome yellow. Greener than M07. Do not use in conjunction with M38 Bright Yellow M07 and M38 due to metamerism. Lead content 19% on dried film. M39 Deep Black Red tone black. More transparent and higher jetness than M08. M40 Transparent Maroon - Provides a clean red face and a very brown low angle flip in metallics. M41 Rich Maroon - Blue tone red. Bluer and duller than M46. More transparent than M46. Gives a dark maroon low angle flip in metallics.

- Clean lead free orange as an alternative to M27.

- Coarse bright metallic. Gives a dark low angle flip.

## Mi-Tech Protective Coatings

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M46 Red Maroon - Tone between M01 and M20, but cleaner and redder. Gives a

darker redder, low angle flip in metallics.

M47 Topaz Yellow - Green tone bright lead-free yellow. Greener than M36 but

more transparent than M07 and M36.

M48 Aluminium Medium Coarse -Coarser than M13 with a white flip. Used in basecoats.

M49 Aluminium High Sparkle -Same grade of particle size as M45. Used in basecoats.

M50 Aluminium Extra Fine -Fine and brighter than M13 with a white flip. Used in basecoats.

M51 Aluminium Fine - Same grade of particle size as M26. Used in basecoats.

M52 Bright Red - Clean lead-free tinter and good opacity. Do not use in

metallics.

M53 Garnet Red - Clean red, showing a clean red face and dark yellow flip in

metallics. Very transparent.

M63 Maroon Less red than M41, but equal transparency.

M67 Aluminium Medium Fine Fine metallic effect, coarser & brighter than M13.

M69 Tone Control

Used to modify orientation of Aluminium flake by producing a

duller but coarser face & lighter flip.

UFB Flatting Base - Used to lower gloss level of finished colours (acrylic only).

Add UFB to the finished acrylic paint at the following rates

#### **UFB** flattening guide:

For % Gloss	Description	UFB % by weight
5	Flat / Matt	20
10	Flat / Matt	16
20	Satin	14
30	Satin	12
60	Semigloss	4

301 SE White Pearl Gives a bright face & a clean bright low angle flip.

302 SE Light Green Pearl Gives a bright red face & a clean bright green flip.

303 SE Russet Pearl Gives a bright russet face & a clean russet flip. suitable only for

use in a two layer system

304 SE Silver Grey Pearl Gives a satin face similar to SE301



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305 SE Yellow Pearl	Gives a blue face & a clean bright yellow flip.
306 SE Red Pearl	Gives a red face and a clean red flip
307 SE Blue Pearl	Gives a gold face and a clean blue flip.
308 SE Lilac Pearl	Gives a yellow face and a clear bright lilac flip.
309 SE Satin White Pearl	Satin finish similar to SE301. duller on the flip.
310 SE Light Blue Pearl	Gives a lighter gold face than SE307 and lighter blue on the flip.
311 SE Blue Green Pearl	Gives a blue green on the face and a blue flip.
312 SE Rich Gold Pearl	A rich gold metallic flake suitable for special effect colours.
313 SE Red Brown Pearl	A yellow toned red pearl.
314 SE Iris Blue Pearl	A clean, fine blue pearl.
315 SE Blaze red Pearl	A blue toned russet pearl.
316 SE Plum Pearl	A bluer tone of red plum.
351 SE Special White	Produces a subtle face angle "flash" and a frosty blue flip angle in metallics.
317 ZR Radiant Red	Semi transparent very coarse russet mica. Bright star burst look in sunlight or
318 ZR Galaxy Blue	bright light. Similar to SE306.  Transparent blue mica with a very coarse particle size. Gives blue face,
319 ZR Sunbeam Gold	yellowish flop same as SE307.  Transparent gold mica. Similar to SE305. But very coarse sparkle. Gold face,
320 ZR Crystal Silver	blue flop.  Transparent white mica, similar to SE301 white pearl but with very coarse
321 ZR Fireside Copper	sparkle face and yellowish flop. Semi transparent mica, similar to SE313 but with very coarse copper sparkle
322 ZR Stellar Green	face and a dark red copper flop. Semi transparent mica, similar to SE302 but with more of a starburst effect in the sunlight.



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For Microsoft Windows Vista /XP /Windows 2000/Windows Me/Windows 98

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Introduction

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1. System Requirements

This software requires the following system configuration:

Computer: This program will only operate on a PC pre-installed with

Windows Vista, XP, 2000, ME or 98.

Operating System: Windows Vista

Windows XP SP1,SP2

Windows 2000 Professional SP4

Windows ME

Windows 98 Second Edition

CPU: Pentium II (or compatible processor) or higher

(Celeron 566MHz or higher)

Memory: 32MB or higher

Hard drive: At least 20MB free space prior to installing

Other drive: CD-ROM drive

Screen: 1024x768 or higher

Colour 16bit or higher

Printer: A default printer driver must be installed.

(A physical printer is not required.)

Notes:

- This product is designed specifically for 32-bit versions of Windows.

- We recommend that you keep your system up to date with Windows Updates.



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Installation Notes

1. Windows 98

- Place the CD in CD-ROM drive.

## NOTE: Depending on your computer, the installation of the various components can take a long time, please be patient.

- The installation program should start automatically. If it fails to start automatically, run HCPreSetup.exe from the CD-ROM drive.

Click on install,

When prompted, choose the defaults.

After each component is installed click on the install button to install the next component.

If Microsoft Internet Explorer 6.01 is not installed on your computer it will be installed first. (Requires reboot, should reboot automatically)

If Microsoft .NET.Framework 1.1 is not installed it will be installed next. (Will prompt for reboot)

If Microsoft Data Access Components is not installed it will be installed next. (Will prompt for reboot)

If Microsoft Jet 4.0 is not installed it will be installed next.

After Microsoft Jet 4.0 is installed, HiChem Paint Formulations will be installed

Once the HiChem Paint Formulation program is installed exit the install program by choosing the Close button.

To run the HiChem Paint Formulation program double click on the HiChem Paint Formulation icon which is placed on your desktop.

NOTE: You must have a default printer installed on your computer.



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#### 2. Windows Vista, XP, 2000 or Me

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- Place the CD in CD-ROM drive.

The installation program should start automatically. If it fails to start automatically, run HCPreSetup.exe from the CD-ROM drive.

Click on install,

If any of the following components are not already installed you will be prompted to install them. At least Microsoft Internet Explorer 6.01 Microsoft .NET.Framework 1.1 Microsoft Data Access Components Microsoft Jet 4.0

Choose the defaults.

Once installed exit the install program by choosing the Close button.

To run the HiChem Paint Formulation program double click on the HiChem Paint Formulation icon which was placed on your desktop.

NOTE: You must have a default printer installed on your computer.

### 3. Getting Help

- If you require assistant during the installation or the running of the program Ring the HiChem Help Desk on (03) 8792 6712

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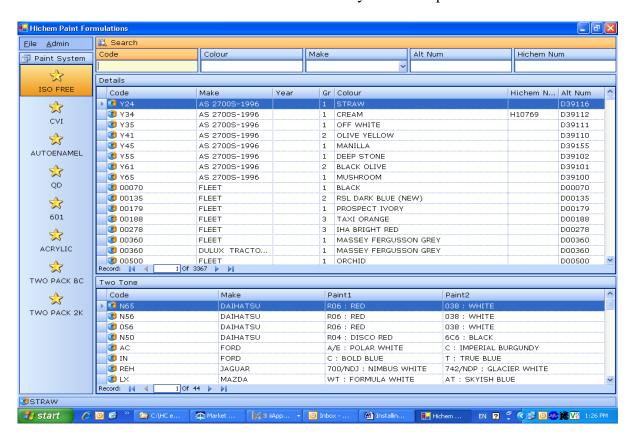
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#### 4. Running the program

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Double click the HiChem Paint Formulation icon on your desk top.



To Select your paint system click on appropriate Paint System Star.

Near the top of your screen are a series of empty boxes.

If you know the paint code type that code into the code box

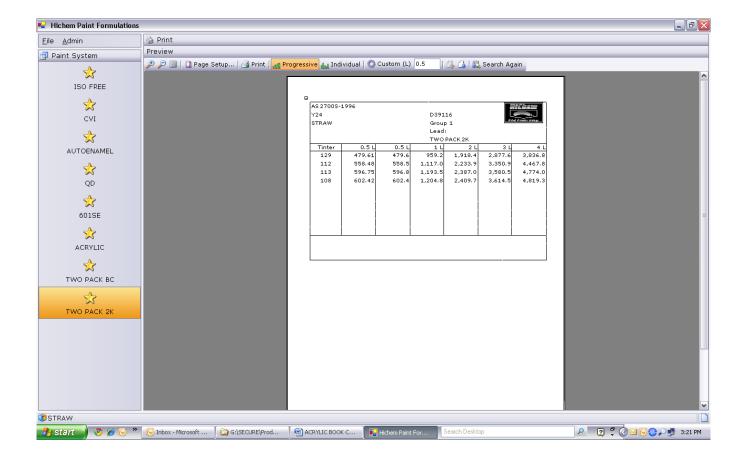
If you know the paint colour type that colour into the colour box

You can refine your search by typing in a Maker's name.

By clicking on a column heading you can sort by that column.

Highlight the formula you want displayed and double click it.

You can also use the up down keys on your keyboard to select it and then hit enter.



By default, weights are shown progressively.

If you want individual weights, click on the Individual button.

You can change the quantity by entering the volume you require in the Custom (L) box and hitting the enter key.

Search again by clicking on a Paint System Star, or the search again button.