

NZ Collision Repair Association Inc.

**Approved 2005 Guidelines for
the Automotive Refinishing
Industry**

Revised 2011



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TABLE OF CONTENTS

1.	INTRODUCTION	5
1.1	General.....	5
1.2	Scope	5
1.3	Philosophy	5
1.4	Implementation	5
1.5	Interpretation.....	5
1.6	Administration of Legislation.....	5
1.7	Consequences of Non Compliance	6
2.	A SUMMARY OF THE HEALTH AND SAFETY IN EMPLOYMENT ACT AND REGULATIONS	6
2.1	Regulations	6
2.2	Approved Codes of Practice	6
3.	HAZARDOUS AREA CLASSIFICATION	7
3.1	General.....	7
4.	SPRAYING APPLICATIONS.....	7
4.1	General.....	7
4.2	Spray Booths.....	7
4.3	Non Designated Spray Areas	7
4.4	Designated Spray Areas.....	7
4.5	Vehicle Under Body Coating.....	8
4.6	Overspray Filters	8
5.	ELECTRICAL EQUIPMENT	8
5.1	General.....	8
6.	STORAGE OF FLAMMABLE LIQUIDS AND GAS	9
6.1	Tint/Mix Room Ventilation	9
7.	PROTECTIVE EQUIPMENT AND SAFETY.....	9
7.1	Material Safety Data Sheets (MSDS).....	10
7.2	Amenities	10
7.3	Eating and Smoking	10
7.4	Health Surveillance	10
8.	FIRE PRECAUTIONS	10
8.1	General.....	10
8.2	Fire Extinguishers	11
8.3	Smoking and Hot Work.....	11
9.	MAINTENANCE.....	11
9.1	General.....	11
9.2	Housekeeping.....	11

TABLE OF CONTENTS (continued)

APPENDIX 1: COMPLIANCE SCHEDULES FOR SPRAY BOOTHS, TINT/MIX ROOMS AND DESIGNATED SPRAY AREAS.....	12
APPENDIX 2: CHECKLIST FOR SPRAY BOOTHS, TINT/MIX ROOMS AND DESIGNATED SPRAY AREAS.....	13
APPENDIX 3: AN ABBREVIATION OF THE HAZARDOUS SUBSTANCES (CLASSES 1 6 5 CONTROLS) REGULATIONS 2001 AND AMENDMENTS.....	14
APPENDIX 4: LIST OF REFERENCE DOCUMENTS	15
1. Regulations.....	15
2. Codes of Practice	15
3. Standards.....	15
APPENDIX 5: EXAMPLE OF FLAMMABLE LIQUID AND GAS CLASSIFICATIONS .	16

1. INTRODUCTION

1.1 General

The purpose of these Guidelines is to describe preferred work practices that will protect the safety and health of personnel involved in Automotive Refinishing. The Guidelines will generally satisfy the requirements of The Health and Safety in Employment Act (HSE). However these Guidelines should be read as specific to the Automotive Repair Industry.

1.2 Scope

These Guidelines cover automotive spraying operations.

1.3 Philosophy

The Guidelines have been developed on the premise that a properly designed and operated spray booth and tint/mix room complying to AS/NZS 4114 provides the most effective best practice means of ensuring a safe and healthy working atmosphere when spray coatings are applied, used or stored.

1.4 Implementation

1.4.1 All new spray booths, tint/mix rooms and designated spray areas will be required to meet or exceed the Standards set out in these Guidelines.

1.4.2 All existing installations are required to meet or exceed the Regulations, Standards, Codes of Practice or Bylaws relevant at the time of installation.

1.5 Interpretation

1.5.1 The importance to be attached to a particular requirement is indicated by the following usage:

- shall and must implies the instruction is considered to reflect a legislative requirement;
- should and may implies that the recommendation be adopted as a means of complying a legislative requirement.

1.6 Administration of Legislation

1.6.1 The Occupational Safety and Health Service of the Department of Labour, (DOL) administers The Spray Coating Regulations 1962, The Health and Safety in Employment Act (HSE), and The Health and Safety in Employment Regulations.

1.6.2 The Energy Safety Service (ESS) of the Ministry of Consumer Affairs administers the Electricity, Gas Acts and Regulations.

1.6.3 Hazardous Substances and New Organisms Act (HSNO) are administered by Environmental Risk Management Authority (ERMA) and enforced by the Department of Labour.

1.6.4 The Building Act is administered by Department of Building and Housing (DBH), and by Territorial Authorities (TA) and local Councils.

1.7 Consequences of Non Compliance

1.7.1 The CRA membership status could be revoked with notification to the relevant authority.

2. A SUMMARY OF THE HEALTH AND SAFETY IN EMPLOYMENT ACT AND REGULATIONS

The principal object of The Health and Safety in Employment Act (HSE) is to prevent harm to employees at work. To do this it imposes duties on employers, employees, principals and others, and promotes excellence in health and safety management by employers. It also provides for the making of Regulations and Codes of Practice.

2.1 Regulations

Regulations are promulgated from time to time under the HSE Act. Regulations may impose duties on employers, employees, designers, manufacturers, and others relating to health and safety. These Regulations may apply with respect to places of work, plant, processes or substances and may have been made to deal with particular problems that have arisen.

2.2 Approved Codes of Practice

2.2.1 Codes of Practice and Guidelines are statements of preferred work practice or arrangements, and may include procedures which could be taken into account when deciding on the practicable steps to be taken. Compliance with Codes of Practice is not mandatory. However, they may be used as evidence of good practice in Court.

2.2.2 Taking all practicable steps means what is reasonably able to be done to achieve the result in the circumstances, taking into account:

- the severity of any injury or harm to health that may occur;
- the degree of risk or probability of that injury or harm occurring;
- how much is known about the hazard and the ways of eliminating, reducing or controlling it; and
- the availability, effectiveness and cost of the possible safeguards.

3. HAZARDOUS AREA CLASSIFICATION

3.1 General

- 3.1.1** The term "hazardous area" applies specifically to the hazards that may arise from the presence of an ignition source (ie. electrical equipment) in areas containing flammable liquids or gas.
- 3.1.2** The designation and extent of the hazardous area may be defined by a competent person in accordance with AS/NZS 60079.10. The employer or person in control of the place of work is responsible for ensuring that all electrical equipment present within the hazardous area is suitable for the purpose. An Electrical Inspector/Test Certifier should be contacted for advice if there are any doubts.

4. SPRAYING APPLICATIONS

4.1 General

Spraying applications covered by these Guidelines shall be confined to properly designed and constructed spray booths, and designated spray areas.

4.2 Spray Booths

The requirements for spray booths are detailed by each Regulator. Refer to administration of legislation - clause 1.6. AS/NZS 4114, Part 1 & Part 2 is generally recognised as best practice in taking all practical steps.

4.3 Non Designated Spray Areas

Non designated spray areas are permitted only in accordance with AS/NZS 60079.10.

4.4 Designated Spray Areas

- 4.4.1** Designated spray areas are permitted only as follows:
- on premises that operate a compliant spray booth; or
 - on premises that operate only a collision repair facility (non paint).

Spray areas may be used for minor touch up spraying in relation to the actual size of the vehicle.

- 4.4.2** Spray areas, shall be provided with mechanical extract ventilation, discharge and control systems, and airflow rates complying with AS/NZS 4114, Part 1 & Part 2. The exhaust extraction system shall be protected with an over spray filter.

4.5 Vehicle Under Body Coating

Spray under body coating of vehicles conducted in areas having good natural or mechanical ventilation, shall be exempt from the provisions of these Guidelines provided:

- the area provided for under body coating complies with AS/NZS 60079.10;
- the minimum respiratory protection worn shall be an air purifying respirator fitted with cartridges for organic vapours.

4.6 Overspray Filters

4.6.1 Spray booths and designated spray areas should be provided with an effective means for removing overspray. This may be accomplished using:

- dry filters; or
- a water turbulence inducing system; or
- water sprays; or
- water curtain.

4.6.2 Dry type overspray collection filters should conform to the following:

- the filters should be mounted in metal supports and holders and enclosed in a metal grid unless the filters are made of non-ignitable material;
- they should not be used alternately for different types of painting materials, where the combination of such materials could result in spontaneous ignition. Examples are the use of nitrocellulose lacquers with other finishing materials containing drying oils, such as varnishes, oil-based stains and air drying enamels.

4.6.3 The solids removed by water overspray collection systems should not enter the sewer, or stormwater but be separated from the water using a filter, or strainer. The water used should be recycled in an enclosed system containing proprietary chemicals to assist in the separation and collection of any solids present. The accumulated sludge and water shall be disposed of in accordance with local authority plans and bylaws.

5. ELECTRICAL EQUIPMENT

5.1 General

All electrical equipment installed must comply with the current Electricity Safety Regulations.

Spray booths and tint/mix rooms requirements are detailed in AS/NZS 60079.14 and AS/NZS 60079.17.

6. STORAGE OF FLAMMABLE LIQUIDS AND GAS

All flammable thinners, lacquers, resins and paints shall be stored complying with HSNO Regulations.

- Not more than 250 litres in containers each not exceeding 20 litres capacity may be stored in a storage cabinet that is constructed in accordance with AS 1940.
- Not more than 450 litres in containers not exceeding 20 litres capacity may be used and stored in a tint/mix room (AS/NZS 4114) complying with Gazette 70 schedule 8.
- Not more than 450 litres in containers not exceeding 20 litres capacity may be used and stored in tint/mix rooms (1 hour fire rated) complying with Gazette 35 schedule 10.
- Larger quantities refer to Gazette 35 schedule 10.
- For diesel tanks and gas storage refer to HSNO Regulations.

6.1 Tint/Mix Room Ventilation

Mechanical exhaust ventilation of a minimum 25 air changes per hour must be provided to minimise the exposure of employees to the inhalation of toxic vapours.

7. PROTECTIVE EQUIPMENT AND SAFETY

All employees engaged in spraying applications shall be provided with and required to wear the following protective equipment appropriate to the operation(s) carried out:

- full length overalls preferably made from lint free absorbent fabrics. Sufficient pairs of overalls should be supplied to each employee;
- disposable PVC or thin neoprene or nitrile gloves for all operations that may involve contact with sprayed materials. Absorbent fabric gloves however, may provide adequate protection against exposure to some spray mists. Sufficient pairs of gloves should be provided to each employee;
- safety glasses with side shields or goggles;
- safety footwear when working with heavy articles; for light work, covered footwear should be worn;
- disposable single use dust masks provide some protection against the inhalation of dusts generated when dry cleaning methods are used to remove overspray from booth surfaces. However half face piece air purifying respirators fitted with the correct dust filter are more efficient and preferred;
- air line respirators must be worn whenever any restricted substance (eg. Isocyanates) is sprayed (refer to DOL for details).

The air supply for the respirator must be clean and free of dust, oil, water, carbon monoxide, carbon dioxide and taste. Reference should be made to AS/NZS 1715 & 1716.

The publication "A Guide to Respiratory Protection" should be obtained from the nearest DOL office. It contains helpful advice on the proper selection and care of respirators.

7.1 Material Safety Data Sheets (MSDS)

Employers must ensure that MSD Sheets and relevant safety and hazards information is readily accessible to employees, refer to HSNO Regulations.

7.2 Amenities

7.2.1 A wash hand basin with hot and cold water, soap and clean towels should be available to spray operators.

7.2.2 A locker should be provided for each employee to store protective equipment.

7.3 Eating and Smoking

7.3.1 Smoking and the consumption of food and drink shall not be permitted in areas used for spray applications, paint mixing or storage of flammable materials.

7.3.2 Prior to eating or smoking, employees should wash their hands and face to remove traces of spray deposits that might otherwise be inhaled or swallowed. Soap or proprietary cleansers should be used; never use solvents to remove spray deposits from the skin.

7.4 Health Surveillance

Employers shall ensure that employees who regularly spray or are within the sprayed atmosphere or place of spraying are examined at least annually under a suitable health surveillance programme. Specific advice on the health surveillance required, may be obtained from any DOL office.

8. FIRE PRECAUTIONS

8.1 General

8.1.1 As nearly all spray operations involve the use of flammable substances or in the case of aqueous coatings give rise to flammable deposits, strict precautions must be taken to control all ignition sources in spray booths, store rooms, and spray areas.

8.1.2 Within the hazardous area and at a distance horizontally of 6m beyond the hazardous area and at all heights extending above the hazardous area to a solid floor, ceiling or roof no person shall:

- smoke;
- bring any naked flame or other source of ignition;
- start or use the engine of any vehicle; until all flammable substances including significant paint deposits have been removed.

8.2 Fire Extinguishers

Two or more fire extinguishers ABC/ABE (dry chemical) shall be provided for each spraying/paint mixing location.

Reference should be made to the HSNO Regulations.

8.3 Smoking and Hot Work

NO SMOKING OR OPEN FLAMES signs shall be prominently displayed in premises used for spray painting.

9. MAINTENANCE

9.1 General

To ensure that spray booths and associated spraying equipment continue to conform to the Standards set by these Guidelines, a good maintenance programme is essential. This should be based on the manufacturer's recommendations, but should include:

- annual monitoring of the level of carbon monoxide produced by direct fired heating units; refer to AG 501;
- where applicable, a set of replacement overspray filters;
- regular servicing of the compressor unit, air lines and filters used to supply any air-fed respirator. Full details of these requirements are contained in AS/NZS 1715;
- Appendix 1 and 2 includes comments on service and maintenance of plant.

9.2 Housekeeping

9.2.1 The interior surfaces of spray booths, and exhaust ducting including the fan blades are subject to the build up of spray deposits, which if not removed could significantly contribute to the fire risk. These surfaces shall be kept clean by the regular removal of spray deposits.

9.2.2 Rags and any other material used for cleaning purposes that may contain absorbed solvents and paint constituents must be disposed of in covered metal bins and emptied daily.

Reference should be made to the HSNO Regulations.

APPENDIX 1: COMPLIANCE SCHEDULES FOR SPRAY BOOTHS, TINT/MIX ROOMS AND DESIGNATED SPRAY AREAS

Section 8 of The Building Act 2004, requires spray booths and tint/mix rooms and drying rooms, and designated spray areas classified as buildings or parts of a building, to have a Compliance Schedule. The most likely situations when a Compliance Schedule would be required - refer to Department of Building and Housing article Code Word issue 22.

The Compliance Schedule may call up recognised Standards such AS/NZS 4114, Part 1 & Part 2, with respect to ventilation of spray booths and tint/mix rooms or AS 1482, with respect to ventilation of tint/mix rooms.

The Compliance Schedule may also require annual examination as part of the IQP inspection.

If unsure check with your local council or Regional Territorial Authority.

APPENDIX 2: CHECKLIST FOR SPRAY BOOTHS, TINT/MIX ROOMS AND DESIGNATED SPRAY AREAS

The following checklist should assist with ensuring compliance with legislation including The Health and Safety in Employment Act (HSE) and the Hazardous Substances and New Organisms Act (HSNO):

- a Location Test Certificate may be required for the use and storage of flammable liquids and gas (HSNO Regulations);
- a Discharge Permit may be required under the Regional Air Plan (Resource Management Act);
- a Building Consent may be required for alteration of an existing booth, tint/mix room or construction of a new booth and tint/mix room. A Compliance Schedule requiring an annual IQP inspection may also be required - refer to local Council;
- an Electrical Certificate of Compliance will be required for control systems, electrical fittings and wiring associated with the booth, tint/mix room and designated spray areas. Re-inspection is required every 4 years or when any alterations or repairs are made - refer to Electrical Safety Regulations;
- a hazardous area dossier should include as applicable: electrical wiring diagrams, records of work done, certificates of compliance, certificates or statements of component compliance, a site plan showing the location of the hazardous substance locations in relation to the legal boundary, hazardous atmosphere zones and controlled zones;
- manufacturer's or supplier's recommendations should be followed with regard to service/maintenance of plant. This should include, but not be limited to, the following, as appropriate:
 - (a) annual examination and maintenance of any heating plant. Certificates and documents relating to examination and maintenance should be kept in a dossier;
 - (b) regular cleaning and replacement of air filters, used to filter inlet air, as well as filters used to clean air exhausted from the booth, tint/mix room or designated spray area;
 - (c) annual measurement of airflow within booths, tint/mix rooms and designated spray areas;
 - (d) annual measurement of carbon monoxide and carbon dioxide, in the booth, if the booth is heated by a burner;
 - (e) regular cleaning and replacement of air filters, used for supplying breathing air from a compressor;
 - (f) annual air quality measurements of breathing air, supplied from a compressed air source.

APPENDIX 4: LIST OF REFERENCE DOCUMENTS

1. Regulations

- The Health and Safety in Employment Act (HSE)
- The Spray Coating Regulations 1962
- The Health and Safety in Employment Regulations
- Electricity Safety Regulations
- The Building Act
- Hazardous Substances and New Organisms Act (HSNO)
- Resource Management Act
- Australian Gas Association Code 501 (AG 501)

2. Codes of Practice

- Approved Code of Practice for the Safe Use of Isocyanates

3. Standards

- AS/NZS 4114, Part 1 & Part 2 - Spray Painting Booths
- AS/NZS 1715 & 1716 - Selection, Use and Maintenance of Respiratory Protective Devices
- AS 1482 - Electrical Equipment for Explosive Atmospheres - Protection by Ventilation
- AS 1940 - Storage and Handling of Flammable and Combustible Liquids
- AG 501 - Australian Gas Regulations
- AS/NZS 60079.10 - Electrical Apparatus for Explosive Gas Atmospheres - Classification of Hazardous Areas
- AS/NZS 60079.14 - Explosive Atmospheres - Electrical Installations, Designs, Selection and Erection
- AS/NZS 60079.17 - Explosive Atmospheres - Electrical Installations, Inspections and Maintenance

Related information and booklets (≠A Guide to Respiratory Protectionø) are available from DOL.

APPENDIX 5: EXAMPLE OF FLAMMABLE LIQUID AND GAS CLASSIFICATIONS

The following classifications are to be used as a guide only.

- 2.1.1A - LPG / Propane
- 3.1A - Turps
- 3.1B - Thinners, Reducers, Prepsol
- 3.1C - Tinters, Hardeners, Clears
- 3.1D - Diesel

For many years each of the local councils within New Zealand employed suitably warranted Dangerous Goods Inspectors, charged with visiting businesses in their district that either stored or used dangerous goods. Part of this annual visit involved the inspection of any diesel fuel or fuel oil burners, and the tanks that serviced them.

By now because of the new HSNO Act you should all have been through a Location Test Certificate assessment, and in some instances the training of qualified approved handlers should the quantity of paint related material on site require it.

The method used to heat either your spray booth or bake oven could be by:

1. gas taken directly from reticulated natural gas mains;
2. 45kg LPG cylinders, secured via manifold to the exterior of your business and piped through to the burner;
3. installation of a diesel supply tank and/or service tank. These tanks provide diesel or fuel oil directly to burners, fired on demand to heat our booths and bake ovens.

If point number 2 relates to your business and the volume of LPG is in excess of 100 kg (ie. more than 2 x 45 kg cylinders), you are required to have a Location Test Certificate that encompasses the LPG cylinders.

If point number 3 relates to your business where the volume of diesel in the tank is 60 litres or greater, you will also need a Stationary Container System Test Certificate. This certificate is a legal requirement under the Act and failure to secure a Test Certificate could carry significant penalties in the event of an incident.

To deal with this issue of diesel fired burners, consult the list of approved Test Certifiers located at <http://www.ermanz.govt.nz/search-databases/Pages/testcertifiers-search.aspx> - choose Stationary Container Systems and your region.