

**The Environmental Risk Management Authority
P O Box 131
WELLINGTON**

Code of Practice for

**PIPEWORK MARKING for CLASS 3.1 FLAMMABLE
LIQUID FUELS in STORAGE DEPOTS**

**Approved Code of Practice
Hazardous Substances and New Organisms Act 1996**

Code of Practice:	HSNOCOP 21-1
Version:	06-07
Date of Approval:	June 2007

Preface

This Code of Practice (HSNO COP 21-1) is approved pursuant to Sections 78 and 79 of the Hazardous Substances and New Organisms Act. The Environmental Risk Management Authority has delegated the power to approve Codes of Practice to the Chief Executive of the Authority, and this code is approved in accordance with that delegation. It is confirmed that the requirements of Sections 78 and 79 have been met.

Approval of the code is limited to those matters in the document that relate to legislative requirements under the HSNO Act and its regulations.

This code has been developed by ERMA New Zealand and sets out a means of compliance with the requirements of clause 79(2)(b) of Schedule 8 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

The publication date in the Gazette for the Notice of Approval of this Code of Practice is 14th June 2007.

Pursuant to Section 80 (1) (a) of the Act, a copy of the code may be inspected at the Wellington office of ERMA New Zealand.

Pursuant to Section 80 (1) (b) of the Act, a copy of the code is available from the ERMA New Zealand website www.ermanz.govt.nz at <http://www.ermanz.govt.nz/resources/publications/pdfs/COP21-1.pdf>.

Approved this 13th day of June 2007.



A handwritten signature in black ink, appearing to read 'Rob Forlong', is written over a faint, light grey watermark that says 'ERMA New Zealand'. The signature is written in a cursive style with a long horizontal stroke at the end.

Rob Forlong
Chief Executive
ERMA New Zealand

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1. Purpose

The purpose of this Code of Practice is to provide a means of compliance for the marking of pipework for Class 3.1 flammable liquid fuels and associated pipework within a storage depot. Generally such pipework will be connected to or associated with above ground stationary tanks that have a water capacity greater than 60,000 litres.

This Code of Practice is a means of compliance in respect of clause 79(2)(b) of Schedule 8 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended). It should be noted that Clause 79 is only applicable to pipework that forms part of a stationary container system where the stationary tank is larger than 60,000 litres and contains a Class 3.1 substance. This code also includes marking details for associated pipework commonly found in a storage depot, such as fire water and steam, on an advisory basis to enable a consistent approach in the industry.

Compliance with this Code does not obviate the requirement to comply with other sections of the HSNO legislation (or related regulations) or other legislation such as the Health and Safety in Employment Act 1992 and the Resource Management Act.

2. Scope

This Code of Practice is produced primarily for use in fuel storage depots, but can be used in other locations if appropriate. It sets out the requirements for marking of pipework used for conveying fuels with a 3.1 flammable classification that are part of a stationary container system.

3. Limitations

This code should be used in its entirety to meet the requirements of Clause 79. It must not be used at the same location in conjunction with any other standards to determine colours for pipework marking.

This code only covers the requirements of Clause 79 which applies to pipework connected to an above ground stationary tank in a stationary container system.

It does not cover:

- Pipelines outside of a fuel storage depot boundary.
- Underground tanks
- Pipework to which the Health and Safety in Employment (Pressure Equipment, Cranes and Passenger Ropeways) Regulations 1999 (PECPR) applies.
- Pipework to which the Health and Safety in Employment (Pipelines) Regulations 1999 applies.

Marking of pipework that is not connected to an above ground stationary tank is not specifically covered by this code of practice. In such cases the marking requirements should be treated as advisory. Examples of this will be general water supplies, vapour recovery lines, and fire water pipework not connected to the tank.

Section 8 of this code is advisory only. It does not cover situations related to clause 79(2)(b) of Schedule 8 to the Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004 (as amended).

4. The HSNO Act and the Place of Codes of Practice

The HSNO regulations are intended to be (but are not consistently) performance based, that is, they specify the desired outcome without prescribing how to achieve it. They do not require that a single specific means be used to comply with any regulation and this allows for variations in method.

The HSNO Act provides for Codes of Practice approved by ERMA New Zealand to identify acceptable solutions to comply with the specified regulatory requirements. An Approved Code of Practice provides users with a method of meeting the control requirements with a degree of prescription and assistance.

Unless specifically required by the legislation, failure to follow a Code of Practice is not an offence under the HSNO legislation. However, implementing a relevant Code of Practice provides a defence against prosecution for failing to comply with a particular regulatory control requirement.

5. Reference Standards

NZS 5807:1980	Standard for industrial identification by colour, wording, or other coding
AS 1345:1995	Identification of the contents of pipes, conduits and ducts
AS 1318:1985	SAA Industrial safety colour code
AIP CP5 - 1995	Pipeline and underground tank identification

6. Definitions

The words **marker** and **label** are used interchangeably.

7. Pipework Marking

7.1 General

Pipework marking shall be required for all above ground pipework. This may be self-adhesive printed markers denoting product and/or function, or may be painted on the pipe in the colours defined in Table 1. Where fire fighting (foam and firewater) pipe work is painted along its entire length for identification, labels are not required except where both foam and fire fighting water pipes are in close proximity to each other within 1 metre of fire fighting connection points or at any point where identification in an emergency is required.

7.2 Pipework marker locations

Pipework markers shall be applied at the following locations:

- On all pipework leading into and away from a manifold system.
- Within one metre of pipework passing through a wall, bund wall, boundary fence or other barrier, or entering the ground.
- On all pipework in a loading gantry, adjacent to the main control valve or flow-meter for each pipe.

- Within one metre of hose connection points. This may be on loading arm or hose in gantries.
- On long runs of pipelines at intervals not exceeding 50 metres where the pipeline is visible along its length, otherwise at 8 metres.
- On long runs of pipelines that travel from grade up into elevated pipe-racks markers shall be fitted to the individual lines at the point that the lines rise into the rack and then at the point the lines come down from the rack.
- On the suction and discharge piping adjacent to any pump.
- At tee connections, valves, and any other point where identification would be required in normal operation.
- Where pipework enters or exits a tank.
- At any point where identification is required in an emergency or of a hazard.

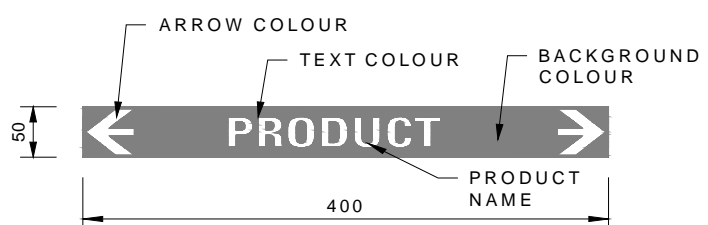
It is also good practice that all buried pipework has warning tape buried above the pipework to provide a warning in the case of future excavations.

7.3 Pipework product identification markers

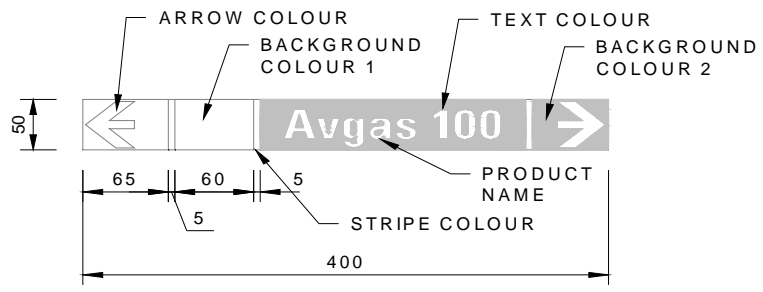
The standards referred to in section 5 provide inconsistent and incomplete colour tables for the range of products carried by many sites carrying hazardous substances with 3.1 flammable classifications. Table 1 is derived from these documents and from current industry usage. Markers shall be according to Table 1 and Diagram 1. Markers are provided with arrows both ends. One end shall be cut off as required.

Minimum text height is to be 24 mm.

Diagram 1 - Product identification markers



PIPELINE PRODUCT IDENTIFICATION LABEL



PIPELINE PRODUCT IDENTIFICATION LABEL (ALTERNATIVE)

Table 1 – Product ID Colour Codes

PRODUCT NAME	TEXT COLOUR	ARROW COLOUR	BACKGROUND COLOUR	COLOUR SPECIFICATION **
98 MOTOR SPIRIT	White	White	Bronze	PMS 161
95 MOTOR SPIRIT	White	White	Red	PMS 187
91 MOTOR SPIRIT	Black	Black	White	-
VAPOUR	Black	Black	White	-
RECOVERY				
JET A1	White	White	Black	-
DIESEL	White	White	Jade Green	AS2700 G21 PMS 3295
AVGAS 100	White	White	Colour 1 – Jade Green	AS2700 G21 PMS 3295
			Colour 2 – Red	BS 5252 04 E 53 PMS 186
			Stripe colour - white	-
SLOPS	White	White	Black	-
HEAVY FUEL OIL	White	White	Brown	AS2700 X54 PMS 4635
LIGHT FUEL OIL	White	White	Brown	AS2700 X54 PMS 4635
WASTE OIL	White	White	Black	-
WATER	White	White	Forest Green	BS 5252 12 C 39 PMS 357
FIRE WATER	White	White	Red	BS 5252 04 E 53 PMS 186
STEAM	Black	Black	Silver-grey	BS 5252 00 A 01 PMS 877
WHITE SPIRITS	White	White	Orange	BS 5252 06 E 55 PMS 151
KEROSINE	White	White	Powder Blue	BS 5252 18 E 51 PMS 298
FOAM	White	White	Red	BS 5252 04 E 53 PMS 186

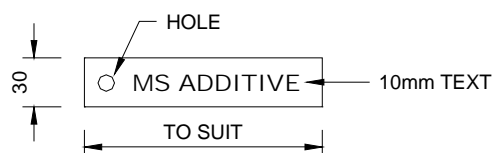
** A close match is permissible if required due to the type of media used. Suggested Pantone Matching System (PMS) colours are provided when printing markers.

7.4 Small pipe identification tags

Where pipework is too small in diameter or too short in length to allow marking as defined in Section 7.3, e.g. additive piping, small laminated plastic tags (or similar) may be fixed to the lines with cable ties. Refer Diagram 2. These should follow the colour coding guidelines in Table 1. Additive piping should be marked with black text on a white background.

When marking additive pipe, usage of proprietary additive names should be avoided. Additive pipework should be marked as MS additive, AGO additive etc, with addition of oil company name where required to distinguish between specific additives e.g. Company XX MS additive.

Diagram 2 – Product Identification Tags



TYPICAL LABEL

7.5 Pipework function markers

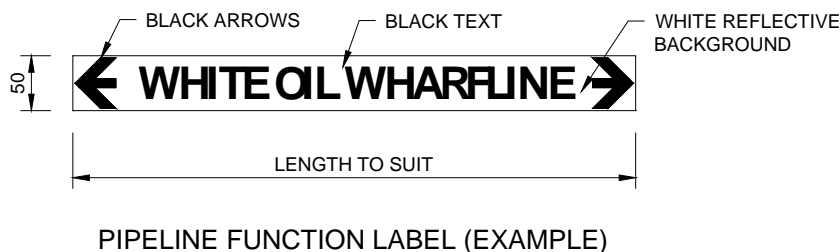
In addition to product marking, some pipework may require to be marked as to function. This is particularly important in the case of wharflines. These may be either self-adhesive markers or painted directly onto the pipe. The markers are similar to the product identification markers, but in all cases to be white markers with black lettering and text. Refer Diagram 3 and Table 3.

Table 3 – Pipework functions

Note that additional wording may be added to the function name to reflect the way the pipework is locally described, e.g. Company X bunkerline, Black oil wharfline

FUNCTION
WHARFLINE
BUNKER LINE
TRANSFER LINE

Diagram 3 – Typical Pipework Function Marker



8. Miscellaneous Marking

8.1 Underground tanks

8.1.1 Tank vents

Vent standpipes shall be marked with a pipework product identification label as per Diagram 2.

8.1.2 Tank fill, dip and nozzles

Marking is by means of a disc (e.g. circular powder-coated metal) approximately 100mm diameter with the product ID in accordance with Table 1. The name of the fitting may also be included. These are to be permanently fixed to the ground no more than 200mm from the dip or outlet nozzle.

8.2 Gantry/Loading hose covers

These are nylon covers a minimum of 600mm long in the colours as specified in Table 1. They should be attached to the loading hose at eye level to identify the product.

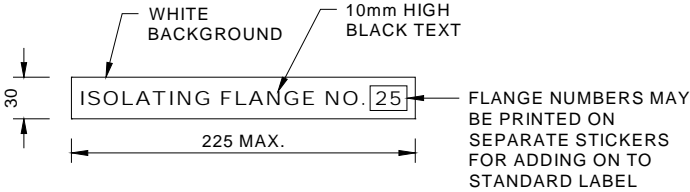
8.3 Isolating flanges

These should be marked either by a self-adhesive marker or by painting on the pipe in 10mm high text. Where the flanges are numbered the number should be included. The marker shall be placed in a visible position around the pipe adjacent to the flange on pipes 150mm nominal bore or larger. Refer Diagram 4.

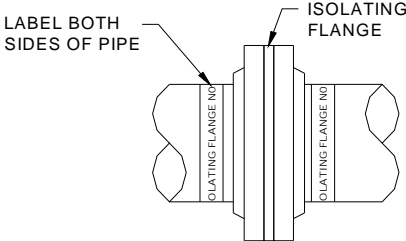
10mm high text will ensure that the marker covers 180 deg of the circumference of the pipe or less, on any pipe 150mm nominal bore or larger.

Isolating flanges on smaller pipes may be marked with a laminated plastic or painted aluminium tag affixed to the flange with a cable tie. Refer Diagram 5.

Diagram 4 – Isolating flange markers for 150 NB pipe and larger

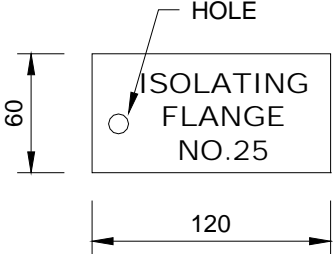


TYPICAL LABEL



TYPICAL LABEL POSITIONS

Diagram 5 – Isolating flange marker for pipes smaller than 150 NB



TYPICAL LABEL