TECHNICAL NOTE

NZ ROADMARKERS FEDERATION MATERIALS GUIDE REVISION

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ABSTRACT

The NZRF has released a revised version of the roadmarking Materials Guide. This revision has been funded by InfraTrain New Zealand, WITT Research Committee and NZIHT who use the Guide as a training resource.

The first version of the Guide was written in 2004 and was based on material presented to local government seminars in Australia by Ken Littlefair in 2002-3.

The guide provides information about the various roadmarking materials used by the industry. It is a reference guide for engineers and consultants looking at materials alternatives, it provides information on health and safety as well as storage and handling issues. It will also be used as a training resource.

The 2009 revision of the Guide has seen; the inclusion of a number of new products, the deletion of those that are no longer in common use and restructuring to assist readers to identify the key differences between each of the materials.

A number of sections have been condensed where the only difference is the application process (Cold-applied Plastic and Thermoplastic) or size classification (Glass Beads).

New sections have been provided to include information not previously covered and recently introduced products.

Reference

Internet The Materials Guide is available on the NZRF website at www.nzrf.co.nz

BACKGROUND

The roadmarking industry uses a wide variety of materials. Most are used as part of a marking system which has an objective of providing guidance to motorists. Some of the materials are competing products carrying out similar functions and others have specialised features for particular applications.

Manufactures of such materials typically provide product information which highlights the features and benefits of their particular products, however this information may not explain limitations, weaknesses and other considerations.

The NZ Roadmarkers Federation (NZRF) developed the Roadmarking Materials Guide to collate information about materials and present it in a consistent way, enabling comparisons between materials to be more easily made.

The Guide was also designed to provide a ready source of information for programmes for Heath and Safety and Environmental compliance.

The Guide is also a training resource for various training programmes including Roadmarking National Certificates registered on the NZQA framework, as well as Diploma and Degree programmes being offered by the New Zealand Institute of Highway Technology.

The Guide is issued with a statement that it should be regarded as a 'work in progress'. Feedback from industry to make the document appropriate to users' needs is welcomed. Particularly welcome is information from users on recorded environmental hazards, and recorded health and safety incidents.

DEVELOPMENT OF THE GUIDE

As part of an ongoing education and technical update programme, the NZRF assisted the Roadmarking Industry Association of Australia with a series of workshops delivered to Local Authority and State Roading Authority Engineers in many venues around Australia through 2002 and 2003.

Among the workshop sessions was one presented by Mr Ken Littlefair, an experienced Australian Contractor and Consultant. In that session, Ken outlined the materials alternatives available for the industry and discussed the relative performance characteristics and other consideration for materials use. His associated paper formed the basis of the first version of the Guide which was prepared in 2004.

The Guide was written by Ross Ridings of Quality Surveillance Ltd, the NZRF Technical Consultant. Ross drew on his own technical library of product information and accessed information that was in the public domain. The writing of the Guide was also assisted through a consultation process that invited suppliers of materials and products to submit their own technical information.

REVISION OF THE GUIDE

Since the first version of the Guide was released in 2004 there had been several changes that impacted on the currency of the document. Some products were no longer in current use, while others that were not being used to any great extent in 2004 were by 2009 in widespread use or were being introduced for use.

With the increased use of long life product – thermoplastic and cold applied plastic it was also time to revise that section of the Guide. In particular to record the current marking formats being used.

There had been significant changes in technology associated with the use of retroreflective elements.

Increased interest in the use of overlay markings as an alternative to line removal meant that these materials should also be added to the Guide.

The revision of the document has been assisted by InfraTrain New Zealand Ltd, WITT Research Committee and New Zealand Institute of Highway Technology Ltd who use the material as a training resource.

MAJOR CHANGES IN THIS VERSION OF THE GUIDE

Changes related to Thermoplastic and Cold Applied Plastics

The previous multiple sections in the Guide for thermoplastics and cold applied plastics have been condensed into one for each, since the material composition, physical properties, manufacturing process etc is the same.

These two sections then include specific application process descriptions for:

- Audio-tactile profile (ATP)
- Structured
- Spray, and
- Hand applied

Temporary Paint

This marking system uses specially formulated water-based acrylic pavement marking paint that is applied as for traditional waterbourne roadmarking paint, but can then be removed after use through the application of a "neutraliser"

Retroreflective Elements

A number of technologies have been developed to assist marking to be effective in wet night and under the condition of raining. These have a high index of refraction and typically have elements bonded to a suitable material. The elements may sit above the water film and will also provide effective retroreflectivity under water.

Illuminated Raised Pavement Markers

These markings typically provide both an illuminated light and audio tactile guidance to motorists. The power source for the marker may be through solar panels, direct power or inductive power source,

Waterbourne Paint Catalyst

This material promotes the rapid dry of waterbourne marking systems. This may either be applied as a liquid or as spherical beads. Its function is to absorb the water being released during the paint drying process.

Cold Applied Plastics Catalysts

The catalyst for cold applied plastic, benzoyl peroxide is combined with other materials to facilitate mixing of the product and applied to Cold Applied Plastic as either a liquid or powder.

Epoxy Permanent Overlay Binder

This two part cold-applied thermosetting epoxy resin is applied with a surface applied aggregate with an appropriate colour and skid resistance. The system can be used either for high friction surfacing or as a permanent overlay marking system.

Polyurethane Permanent Overlay Binder

This two part cold-applied thermosetting polyurethane resin is applied with a surface applied aggregate with an appropriate colour and skid resistance. The system can be used either for high friction surfacing or as a permanent overlay marking system.

SCOPE OF THE MATERIALS COVERED

There are several subheadings under each of the main section in the Guide. The material groupings are:

- Paint
- Cold Applied Plastic
- Thermoplastic
- Self Adhesive tapes
- Glass beads/ retroreflective media
- Angular material
- Solvents
- Catalysts
- Raised Pavement Markers
- RPM adhesive
- Pavement Overlay Binders
- Cement Based Coatings