

Introduction

Quality Control and testing is a crucial aspect of our business, which ensures our customers continually receive a top quality product. Our Laboratory acts as the customer's representative within the organisation and operates very independently to retain that strict relationship of control over production. The lab effectively polices the manufacture of products to ensure not only do they meet the customer's specification but also to maintain consistent product quality. By the elimination of variation in the production process we can supply a top-quality product that our competitors simply can't rival. This consistency of product quality allows our customers to apply the same methods and controls to each and every job. We want our customers to feel safe in the knowledge that our products are so consistently superior, that in the event of site failures, our product will be the last item in the supply chain under scrutiny.



Figure 1 - Sieve Test

Quality Control

Quality Control is an integral part of the production process and furthermore it is a requirement of our certified ISO 9001:2008 Quality System and our EN 13808:2013 (cationic bituminous emulsions) and 15322:2013 (cutback and fluxed bituminous binders) Factory Production Control (CE Marking). We have been certified to the ISO 9001 series since 1992 and EN 13808:2013 since 2011.

ISO 9001:2008 helps organisations to improve customer satisfaction levels, internal efficiency and encourages employee involvement.

The key elements are:

- Establish a Quality Management System
- Utilize the Quality Management System effectively
- Review the end result carefully
- Improve the Quality Management System

These elements are called "PLAN – DO – CHECK – ACT"



Figure 2 - Binder Determination Test

We have significant resources at our disposal to oversee the quality of our product and service provision. We constantly assess all aspects of our product and service provision so that we can continually adapt our business to meet our customers' needs. To demonstrate our commitment we strive to offer a far superior overall service which goes above and beyond product manufacture i.e.

- Specialist Engineering advice
- On site sales team monitoring performance
- In house development teams continuously developing / improving and expanding our products
- Annual seminars to Council (local authorities) employees on Quality, Safety and Operational issues
- Flexible feedback process

Our ultimate objective is to provide the highest quality goods and services to a satisfied end customer. Everything we do in our daily business operations is focused on this goal. From the initial design of a new product to the stage when our customer service department release the product, customer satisfaction is our core objective.

Presently we have three main Laboratories:

- Emulsion and Binders QC Laboratory
- Bitumen QC Laboratory
- Research and Development Laboratory

Emulsion and Binders QC Laboratory

This laboratory handles incoming raw materials, and carries out the daily quality control testing of bitumen emulsions and macadam binders.

Our emulsions and macadam binders comply with the current NRA Binder Specifications RC 380/13 and in accordance with EN 13808:2013 (cationic bituminous emulsions) and 15322:2013

(cutback and fluxed bituminous binders) Factory Production Control (CE Marking) Bitumen and Bituminous Binders - Framework for Specifying Cationic Bituminous emulsions, to which we are formally certified by NSAI.



Figure 3 - Site Samples These are mix designs for Cold Mixes



Figure 4 - Sample Preparation Cold Mixes

The laboratory has at its disposal the necessary equipment to carry out the following tests on Bituminous Emulsions as required in the NRA Binder Specifications (RC 380/13):

- | | |
|---|---------------|
| • Sampling Bituminous Binders | IS EN 58 |
| • Characterization of Perceptible Properties | IS EN 1425 |
| • Preparation of Test Samples | IS EN 12594 |
| • Determination of efflux time of bitumen emulsions by the Efflux Viscometer | I S EN 12846 |
| • Determination of Breaking Value of Cationic Bitumen Emulsions, Mineral Filler Method | IS EN 13075-1 |
| • Determination of Residue on Sieving of Bitumen Emulsions | IS EN 1429 |
| • Determination of Water Content in Bitumen Emulsions – Azeotropic Distillation Method | IS EN 1428 |
| • Determination of Particle Polarity | IS EN 1430 |
| • Determination of Recovered Binder and Oil Distillate from Bitumen Emulsions by Distillation | IS EN 1431 |
| • Determination of efflux time using the Redwood No. 2 Viscometer | IS EN 16345 |
| • Determination of the Efflux Time of Petroleum Cut-Back & Fluxed Bitumen's | IS EN 13357 |

All test equipment is calibrated on an annual basis by certified calibration agencies as required in our Quality Management System ISO 9001:2008, EN 13808:2013 (cationic bituminous emulsions) and 15322:2013 (cutback and fluxed bituminous binders) Factory Production Control (CE Marking).

Bitumen QC Laboratory

This Laboratory carries out the quality control testing on the raw bitumen prior to emulsification into a bitumen emulsion.

Bitumen is delivered by ship to the bitumen terminal direct from the refinery. Each ship load of bitumen is initially tested for compliance with the NRA Binder Specifications prior to use in our emulsion manufacturing process.

The laboratory has at its disposal the necessary equipment to carry out the following tests on the incoming raw bitumen as required by the NRA Binder Specifications for RC380/13



Figure 5 - Conditioning Sample Bitumen Content for Cold Mixes, Macadam's etc.

- Determination of Needle Penetration
- Determination of the Softening Point – Ring and Ball Method
- Determination of Solubility
- Salt Content of Bitumen
- Acid Content of Bitumen

IS EN 1426

IS EN 1427

ISEN 12592

Internal

Internal

All test equipment is calibrated on an annual basis by a certified calibration house as required in our Quality Management System ISO 9001:2008.



Surface Dressing Samples



Duriez Specimens



SWM Coated & Uncoated

Research & Development Laboratory

We are extremely committed to developing new products for today's ever changing roads industry with emphasis being placed on using environmentally friendly renewable resources.

We have a team of highly skilled and qualified individuals whose experience cover all aspects of the road industry from the development of a chemical emulsifier to a bitumen emulsion, through to the final road surfacing stage.

Our R&D laboratory is equipped with specialised and sophisticated equipment. We are one of a few companies in possession of a laboratory emulsion mill which allows us to lead the way in developing new bitumen emulsions.



Figure 5 -Lab Duriez Equipment

Laboratory Emulsion Mill

We are the only company in Ireland manufacturing our own Chemical Emulsifiers, thereby giving us greater control over our manufacturing process from start to finish.



Figure 6 – Research Bitumen Emulsion Lab Mill

Conclusion

Our current strategy is to supply a service and a product which is differentiated from our competitors. This is achieved by producing a top quality product which is manufactured using the ISO 9001:2008 Quality Management System standard, to EN 13808:2013 (cationic bituminous emulsions), 15322:2013 (cutback and fluxed bituminous binders) Factory Production Control (CE Marking) and to the NRA specification RC380/13 at a cost, quality and quantity that meets the customer's needs.



Figure 8 – Aggregate Gradation



Figure 7 - Binder Adhesion Test