

Nouryon

Asphalt Matters

News from the world of Asphalt 2020:1



Content

Applications around the world

4

Cold recycling with Redicote E-11 and E-4875 NPF emulsions - a big success in Ukraine
Unique indigenous virgin cold mix takes off in India
Penetrating prime coat emulsions without volatile solvents
Phosphoric acid based micro surfacing application in China

Products

13

Redicote E-7100 – we launch a new cold in-place recycling emulsifier that provides faster cohesion development
Nonyl phenol ethoxylates phased out
Wetfix G400 - Non-amine-based adhesion promoter and workability/compaction aid for poly phosphoric acid (PPA) modified and other binders
Rediset LQ-1200 – this is our low odor warm mix additive and compaction aid
Redicote E-4900 – 100% active liquid viscosity building Cationic Rapid Set (CRS) emulsifier

Conferences and Asphalt schools

19

Nouryon Asphalt seminars & schools update

Inside Nouryon Asphalt applications

21

We are now Nouryon Asphalt applications
Meet our new Account Managers

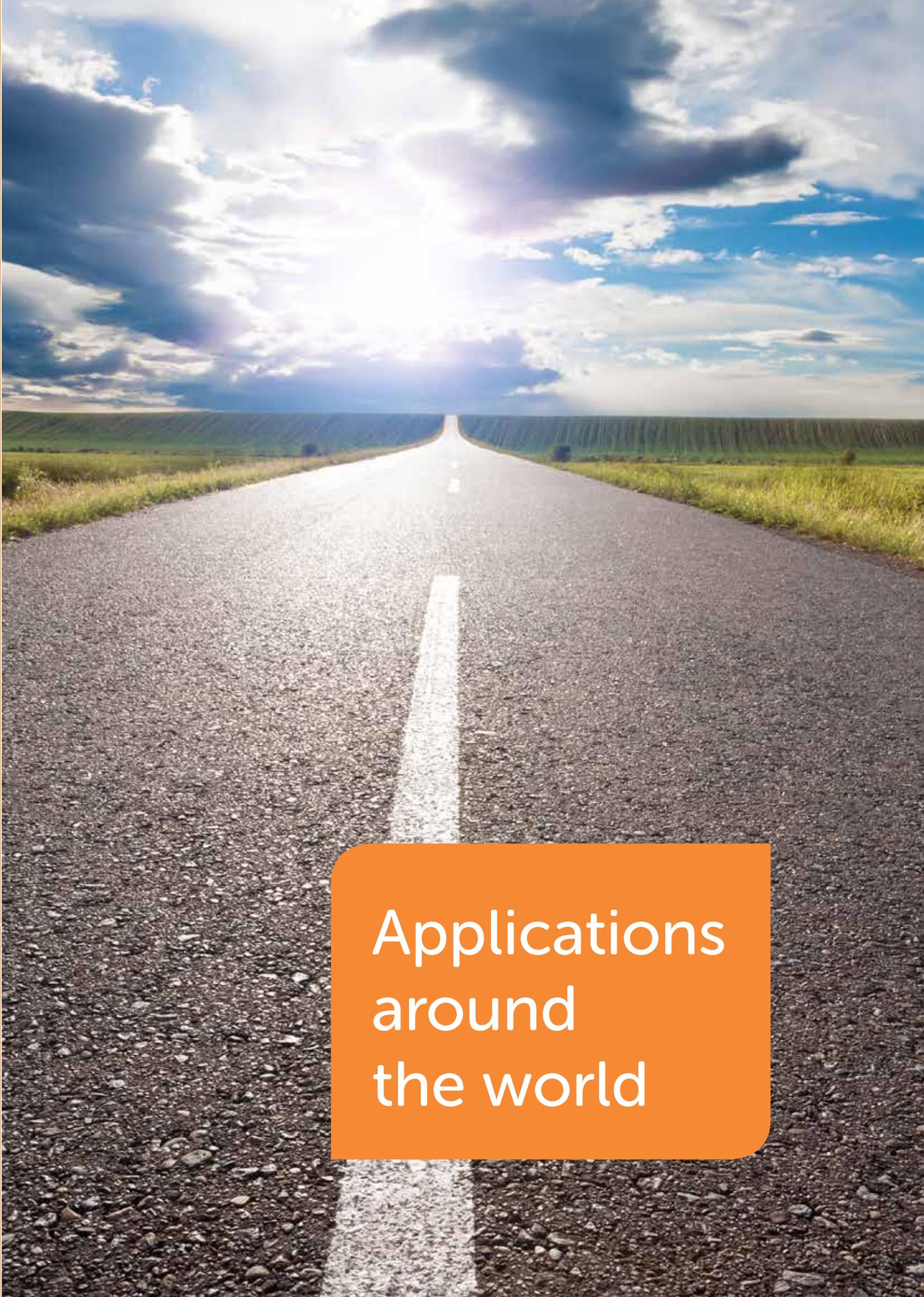
Asphalt Matters is published by:
Nouryon Asphalt Applications

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We are happy to publish
Nouryon's 2020 Asphalt Matters Newsletter

It contains technical articles about interesting asphalt applications from various parts of the world as well as exciting products launched by Nouryon



Applications
around
the world

Cold recycling with Redicote E-11 and E-4875 NPF emulsions - a big success in Ukraine

Article by **Oleksiy Vollis**

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The standard of some roads in Ukraine is below what is necessary to promote international commerce in the region. Despite insufficient funding for the road industry it was necessary to upgrade the road infrastructure to international standards. Therefore, Ukraine mobilized its capabilities to reconstruct one of the country's main highways which runs from M06 Kyiv – Chop to M05 Kyiv – Odesa.

The road network had been neglected for many years so significant work was necessary to rebuild the highway. Cold recycling was chosen to totally rebuild the highway as it is much faster compared to other methods and does not require removal and disposal of large amounts of waste material. It also allows for correction of weaker areas and strengthening the future road base compared to the existing pavement.

Cold recycling that builds good cohesion with the use of bitumen emulsion and cement along with addition of virgin aggregates was already a popular treatment in Ukraine.

The optimum dosage of materials used:

- Cement grade 40 Mpa: 3.5-4.5% (w/w)
- Slow setting bitumen emulsion with **Redicote E-11**: 2.0-3.0% (w/w)
- Virgin aggregate of chip mixture with an optimum grading 0-40 mm: 20-40%

The thickness of the recycling layer was between 18 and 26 cm. It is important to mention that during the recycling process either the base material, watered chip-sand-mix, emulsion and cement was paved by a single pass to reach a base thickness of 18-26 cm or the paving was done with multiple passes to reach a deeper required thickness. Then a leveling course was applied containing coarse graded aggregate (0-40 mm) and was paved to a thickness of 8-10 cm. This was followed by a SMA Surface which was 5 cm thick.

The thickness of the layers was determined depending on the required pavement strength. The sticking point of discussion in Ukraine was 'when it is appropriate to overlay the recycled

course with asphalt concrete?’ Should this be done the day after the recycling material is paved or should one allow the recycled course to cure for a week. Supporters of the first and the second method were divided and most were convinced that the availability of time and the practical experience of the road operation should resolve the dispute. An example of the successful application of cold recycling technology with the above-mentioned dosage rates in Ukraine is the H-09 Lviv – Ivano-Frankivsk motorway (in 2015-2016).

The laboratory of our Ukrainian distributor, Prologue, can test new products with bitumen that is widely used in Ukraine. This allows customers to evaluate their mixes without spending money for testing with external labs.

This allows us to demonstrate the suitability of proven products and solutions which is what happened in 2017, when we presented the emulsifier Redicote E-4875 NPF to the market. The product was new for Ukraine and performed very well both in lab testing and in plant trials at relatively low dosages. The resulting emulsion was of good quality, storage stable and gave required coating and workability with local aggregate mixes. This is one of the key-factors responsible for high quality cold recycling application of bitumen emulsions in Ukraine. In addition, we were able to test and demonstrate advantages of using Wetfix BE as an adhesion promoter in the hot mix overlay courses.

In conclusion the existing practical experience in Ukraine in cold recycling application, the availability of the local lab to do the required testing and the use of high-quality products such as Redicote E-11, Redicote E-4875 NPF and Wetfix BE were contributing factors in successfully completing rebuilding of the highway.



Minister of Infrastructure of Ukraine together with General Manager of PBS inspecting the project on the H-09 where cold recycling with Redicote E-11 was applied.



Recycling project in Ternopil region. Slow set emulsion made with Redicote E-11 was used in this project.



Recycling project in Odessa region. Slow set emulsion made with Redicote E-4875 NPF was used in this project.



President of Ukraine together with Chief of State Road Agency “Ukravtodor” opening a newly reconstructed road in Donets Region. Wetfix BE was used in the SMA mix surface course.

Unique indigenous virgin cold mix takes off in India

Article by BitChem, India

Conventional medium and slow set bitumen emulsions, conforming to IS:8887 (Indian Standard), are currently used in India to produce bitumen emulsion based cold mixes for road construction and maintenance as directed by IRC SP (Indian Road Congress Standard Procedure): 100:2014. These conventional emulsions are not always suitable for a number of reasons. Aggregate quality is variable and the gradation does not always conform to regional standards. In addition, the weather conditions at different sites even within a single state can vary hugely.

There are also regional mandatory requirements such as pre wetting of the aggregate before producing asphalt mixes. Conventional emulsions do not always work due to other factors such as the use of different kinds of mixing equipment. For example, some regions use mechanized hot mix plants for production of dense or semi-dense cold mixes which require hauling mixes over long distances to paving sites and conventional emulsions do not provide the necessary workability time.

To overcome these challenges related to emulsion-based cold mix techniques, BitChem and CSIR-CRRI started laboratory experiments and field trials in different climatic conditions to develop tailor made cold mix technology. The first development was the use of a diagnostic

procedure to determine the best aggregate-binder compatibility in the laboratory (using a bio-incubator) using aggregates with the expected aggregate quality (including marginal materials) and conducting testing simulating site conditions for the application of cold mix. The second step was to develop a portfolio of tailor-made cold mix binders/emulsions and select the most suitable emulsion that would provide the necessary workability without the need for pre-wetting the aggregate. It was found that emulsions based on **Redicote E-4875 NPF** emulsifier met all the requirements.

Finally they developed and installed a cost-effective conversion kit to use existing hot-mix plants that would produce dense/semi-dense cold mixes (seal coat or SDBC) without the need for heating the aggregate and without clogging the plants.

In summary the tailor-made cold mix technique is a field application of mixes designed by CRRI-BitChem by formulating bitumen emulsion to match the available or recommended aggregates. These mixes are produced either through modified hot mix plant or using equipment available at the sites. Also eliminates the need of any pre-wetting of aggregates or heating of the aggregate. The above technique is also suitable for production dense/semi-dense mixes like seal coat and SDBC.

About BitChem:

- A pioneer in the road science and technology sector in India that promotes the Green Roads Philosophy and though a small social enterprise is the India's biggest cold mix technology company
- 2011, Bitchem joined hands with CSIR-Central Road Research Institute (CRRI) to improve rural, district and state roads connectivity in the application of pollution-free cold mix technology
- 2016 selected as Home-Grown Innovator by TDB Team to join in Hon'ble Prime Minister Delegation to Kenya
- In 2016 joint patent filed on collaborative work and tailor-made technology developed by the combined efforts of CRRI and Bitchem
- 2017 awarded the CSIR-Technology Award for Physical Sciences

Key advantages of CRRI-BitChem technology:

- Zero pollution technology compared to conventional hot-mix process
- Saves 1,500-4,000 liters fuel per km during road construction in applications in Rural, MDR, ODR roads
- No preparation time on the site increases productivity by 2-3 times using same equipment by the contractors
- No need of expensive equipment for small projects
- Durability of roads lasts more than 50% due to no heating requirement of the binder or the mix
- Scores high on safety, health and environment areas
- Non-hazardous for laborer and promotes women employment in village areas in construction activities



Cold mix SDBC paving in India



Conclusion

The unique emulsion cold mix technology promoted by Bitchem is taking a strong foothold in India. This technology promotes 2-3 times faster progress using existing facilities without any extra investment. This is green and safe technology with no pollution and saves fuel as there is no heating. The cold mix has proven to be highly durable and resistant to moisture damage. The construction can be done on dry days any time of the year including during cold winter.



According to Indrajeet Upadhyay our Account Manager for Asphalt in India customers also use a combination of Redicote E-4875 NPF and Redicote E-11 for cold mix application. He also says that we are planning to introduce a new emulsifier in India to produce emulsions for base stabilization with cement.

Penetrating prime coat emulsions without volatile solvents

Article by Ester Ternero Dalessi, Douglas Pereira & Sundaram Logaraj

Cutbacks are still used in some countries for prime and tack coat. The solvents from cutbacks evaporate causing pollution and have resulted in several accidents involving fires. The use of expensive solvents also adds to the cost of the formulations. Countries that still use them are now restricting or eliminating the use of cutbacks. The cutbacks use for tack coats can be substituted with emulsions offering advantages such as trackless tack coat. Conventional prime coat emulsion formulations normally still contain solvents which defeats the purpose of not using cutbacks or they are too reactive, breaking quickly on the surface of the base without any significant penetration.

There were specific needs for volatile solvent free penetrating prime coat emulsions from South American countries such as Argentina, Brazil, Paraguay and Peru. Over the years, we have developed prime coat emulsion formulations without volatile solvents that perform better in terms of the depth and speed of penetration compared to cutback binders.

Our research team is constantly seeking improved formulations and solutions for the asphalt market that would reduce the environmental impact on construction.

Penetrating prime coat emulsion formulations is one such development.

The new prime coat emulsion formulations without volatile solvents either have slow set anionic or cationic emulsifiers in combination with a non-ionic emulsifier and can contain bio solvents. The bio-solvents are derived from renewable resources and have a high boiling point as they do not contain any volatile fractions. Examples of bio-solvents are biodiesel, including methyl esters of fatty acids, and soya oil.



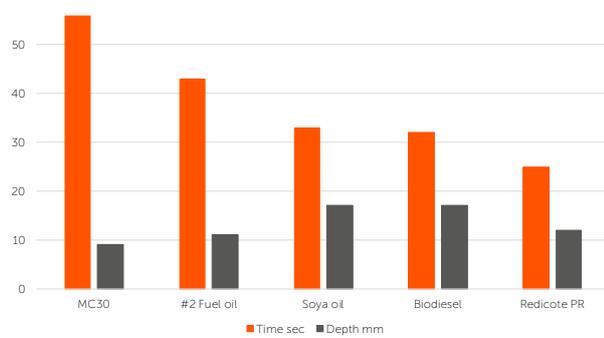
Typical prime coat application

The experimental emulsion formulations with Bio solvents are listed in the table. The emulsions were evaluated using the Pennsylvania DOT 'Sand penetration test for

dust palliatives. Sand penetration test results are listed in the graph.

Experimental formulations for prime coat emulsions

Formulation	#2 Fuel oil	Soya oil	Biodiesel	Redicote PR
Asphalt content (PG 64-22)	35	35	35	35
Bio solvent	0	15	15	15
#2 Fuel oil	15	0	0	0
Redicote E-11 HF-1	2.0	2.0	2.0	2.0
pH of emulsion	5.4	4.9	5.3	5.6
Median particle size microns	4.9	2.9	5.0	3.4
Cement mix test / residue	Pass/Nil	Pass/Nil	Pass/Nil	Pass/Nil



Sand penetration test results according the Penn DOT procedure

The results indicate that emulsions containing bio solvents gave faster and deeper penetration compared to cutback (MC30) and fuel oil emulsions.

During the study carried out by Nouryon and the Campinas State University (UNICAMP) of Brazil a formulation was developed that can replace MC-30 (cutback) with several advantages. The formulation is based on Redicote E-620 which is a nonionic emulsifier and Redicote E-11 HF-1 which is cationic. The emulsion formulation includes a certain amount of green solvent such as vegetable oil or biodiesel. Redicote E-11 HF-1 helps produce a fine particle size distribution and Redicote E-620 which is a wetting agent and co-emulsifier improves penetration in to the base by also chemically stabilizing the emulsion.

These emulsions gave good results when used on Latin American soils that have different structures and compositions which are rich in silica, aluminum oxide, calcium oxide and iron oxides. Redicote E-620 is a liquid, water soluble and odorless co-emulsifier. Easy to handle during preparation of the soap solution as it dissolves easily in water without requiring much agitation. The soap solution can be prepared at room temperature. This emulsion gave faster and deeper penetration compared to MC-30 cutback in both laboratory tests and field applications.

Based on laboratory testing and field trials the following starting formulations are recommended. Anionic emulsions with bio-solvents are recommended for difficult reactive base materials.

Cationic - formulation A:

- 1% Redicote E-11/Redicote E-11 E and 1% Redicote E-47 NPF at natural pH
- Bio-solvent: Bituminous binder blended in the ratio of 10-30%: 90-70%
- 50% emulsion (incl. binder and bio-solvent)

Cationic - formulation B:

- 0.2-1% Redicote E-11 and 0.5-1% Redicote E-620 at natural pH
- Bio-solvent: Bituminous binder blended in the ratio of 10-30%: 90-70%
- 50% emulsion (incl. binder and bio-solvent)

Anionic:

- 1.5% Redicote E-7000 and 1% Redicote E-47 NPF at pH 11.5 with sodium hydroxide
- Bio-solvent: Bituminous binder blended in the ratio of 10-30%: 90-70%
- 50% emulsion (incl. binder and bio-solvent)

Our research laboratories continue to develop improved emulsifier and emulsions formulations for prime and tack coat applications.

Phosphoric acid based microsurfacing application in China



Article by Kefei Zhang, Yong Wang & Sundaram Logaraj

Several years ago, we introduced the Redipave phosphoric acid-based bitumen emulsion microsurfacing system. Quick traffic systems require that microsurfacing applications are opened to traffic in less than one hour or much less in various parts of the world with a wide range of climates and terrains. The main benefits of microsurfacing include improvement of the skid resistance of the wearing course after loss of surface texture due to action of traffic and sealing and protecting the pavement against the action of water and oxidation.

Microsurfacing is also used for rut-filling and re-profiling of the road when needed but it cannot correct underlying structural problems. It is an excellent preventative maintenance surface treatment.

Traditional high-performance systems are usually based on specific bitumen types and emulsifiers in combination with hydrochloric acid. However, it is not always possible to design quick traffic systems with binders that are available, especially low acid types with unreactive aggregates. Hydrochloric acid type systems can also struggle at low ambient temperature and some agencies will not allow microsurfacing to be applied when the

temperature is below 10°C. In several countries, including China, the use of hydrochloric acid is restricted.

In the year 2000, we introduced patented new chemistry for microsurfacing emulsions based on special emulsifiers in combination with phosphoric acid. The system which meets the ISSA standards is now well proven and used by customers in many countries.

Our microsurfacing emulsion system has been used in China and the typical emulsion and job mix formulations applied in Zhejiang Province are listed in the first table. The mixing time and cohesion values are listed in second table.

Emulsion formulation and job mix formula

Redicote EM44

Bitumen (pen 70)	60-62%
Redicote EM44	0.8-1%
Cationic latex	3.5%
Phosphoric acid (85%)	0.5%
pH of the soap	2-3

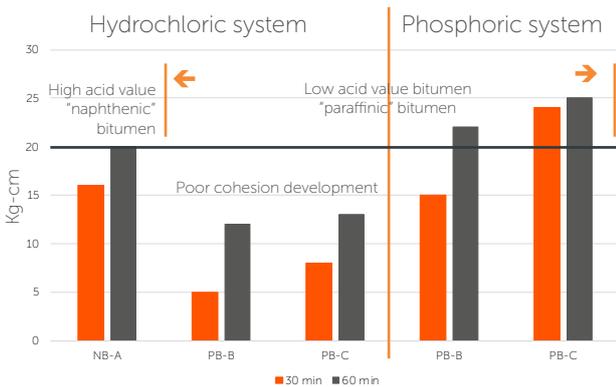
Mix time and cohesion test results

Emulsifier pct	Soap pH	Sand equival pct	Mix time sec	Cohesion value	
				30 min	60 min
0.8%	2.1	77.0	185	23.0	26.0
0.8%	2.5	77.0	200	24.0	26.0

The results demonstrate that quite long mix times of 185 to 200 seconds are achievable with this mix but that it still develops a high level of cohesion in less than 30 minutes. Conventional systems with long mix times do not normally show rapid cohesion development so this behavior is a clear advantage.



Microsurfacing application in Zhejiang province

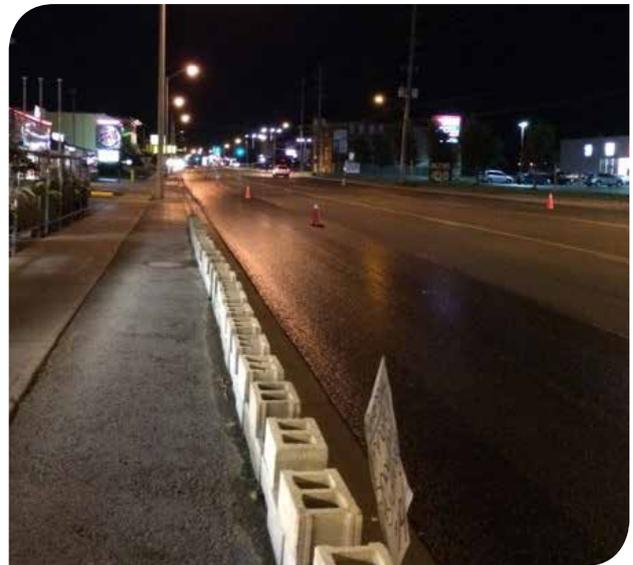


Advantages of the phosphoric acid system

Above we list the cohesion test results for various emulsions and mixes. The binders can be classified as high acid value naphthenic bitumen and low acid value paraffinic bitumen. In most cases it is not easy to design a quick traffic system with the low acid binder. The emulsion based on high acid bitumen gives a cohesion value of 20 kg-cm after 60 minutes and so it is suitable for quick traffic systems, however the emulsions with low acid bitumen struggle to reach the required level of cohesion. On the other hand, the mix with the same low acid bitumen with the special emulsifier and phosphoric acid emulsion system gives

excellent cohesion after only 30 minutes. This means that the emulsion producer or microsurfacing contractor can use a wider range of binders for a quick traffic emulsion systems.

Due to its ability to break and set quickly the phosphoric acid system is very suitable for cooler weather and night paving even if the ambient temperature is below 10°C. In addition, the cured surface normally has a much blacker appearance compared to conventional systems.



Night paving of phosphoric acid based micro surfacing mix

The key to success is our special emulsifiers in combination with phosphoric acid when the quick traffic design requirements cannot be met with conventional emulsifier chemistries and low acid binders. The normal emulsifiers that are used with hydrochloric acid are not suitable for use with phosphoric acid. We recommend Redicote C-320 and Redicote C-320E and Redicote EM44 globally except in US and China. In US and China we recommend Redicote EM44 or Redicote EM-44A.

Many successful projects have been completed all over the world including China, Europe and Canada using emulsions made with our emulsifiers.



Products

Redicote E-7100

We launch a new cold-in-place emulsifier that provides faster cohesion development.

The use of cold mix and cold recycling with emulsions is growing in many countries. In developed countries recycling is prevalent as there are restrictions on mining new aggregates and in addition there is a reduction in the cost of mixes if one can use recycled material. The use of emulsions is attractive as the oxidized aged pavement does not undergo further oxidation by being subjected to higher temperatures as in hot recycling. In certain countries the use of virgin cold mix is growing such as in India for secondary roads in remote regions where hot-mix plants are not accessible. Countries such as Sweden are promoting cold mix to reduce emissions and energy consumption associated with paving.

In cold-in-place recycling (CIR) there is a need for an emulsifier system that builds faster cohesion but still gives enough workability. Quite often a certain amount of cement is used in such mixes and the emulsifier system that is used needs to give enough workability with this additive. Nouryon is now introducing the Redicote E-7100 emulsifier that can be used to produce emulsions for CIR applications that build faster cohesion development and reduce curing time compared to common CSS emulsifiers. It is also compatible with cement and so will give enough workability in mixes with or without cement. Redicote E-7100 emulsions exhibit less settlement and better storage stability compared to other CSS emulsifiers.



In place recycling with emulsions – Courtesy of Pavement Recycling Systems



Nonyl phenol ethoxylates phased out

According to the US EPA and European Chemical Agency (ECHA) nonyl phenol ethoxylates (NPEs) are highly toxic to aquatic organisms. NPEs do not meet the definition of safer surfactant and so the US EPA has a voluntary program for phasing out NPEs and is restricting their use through the Safer Detergents Stewardship Initiatives (SDSI).

While it is not yet mandatory to eliminate the use of NPEs, we took the proactive step to eliminate NPEs from our asphalt product line by the end of 2016. Three of our slow setting emulsifiers required reformulation to meet this commitment. Our global team successfully designed, tested and launched NPE free (NPF) versions of the products which are Redicote E-4868 NPF, Redicote E-4875 NPF and Redicote E-47 NPF. During the reformulation projects, the new products were rigorously tested to ensure that there were no significant differences in performance or handling between the original and NPF versions. Both versions are now also non-flammable. The switch to the NP free versions was completed in the beginning of 2017 and since then the new products have been successfully used by our customers globally.

Redicote E-4868 NPF and Redicote E-4875 NPF are versatile proven products for cationic slow setting bitumen emulsions which are used in applications such as slurry seal, prime coat, tack coat, cold recycling and sealcoats. The NPF versions are more environmentally friendly with the equivalent excellent performance in asphalt applications.



Tack coat, slurry and parking lot sealer applications



Wetfix G400

Non-amine-based adhesion promoter and workability/compaction aid for poly phosphoric acid (PPA) modified and other binders.

Conventional adhesion promoters/anti-stripping additives such as amine-based surfactants and lime are not compatible with PPA modified binders as PPA neutralizes the alkaline amine surfactants or lime. This also diminishes the positive effects of using PPA in asphalt binders. We launched Wetfix G400, a versatile adhesion promoter for the asphalt market that is derived from renewable resources and is compatible with PPA modified binders. In some regions PPA is growing in popularity as an economical way to modify binders to the desired performance level.

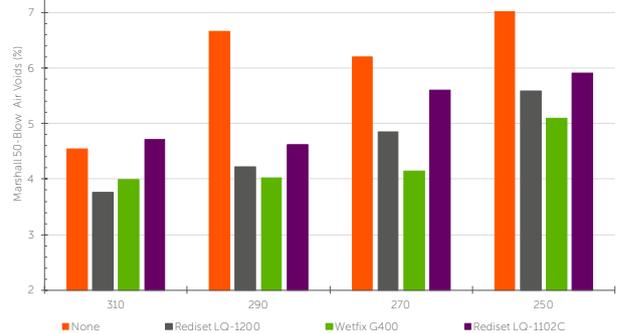
With Wetfix G400, we have created a solution for our customers that is versatile, exceptionally low odor, environmentally friendly and compatible with PPA modified binders. Images below show the results of the boil tests done with the Vermont procedure with and without the addition of Wetfix G 400.



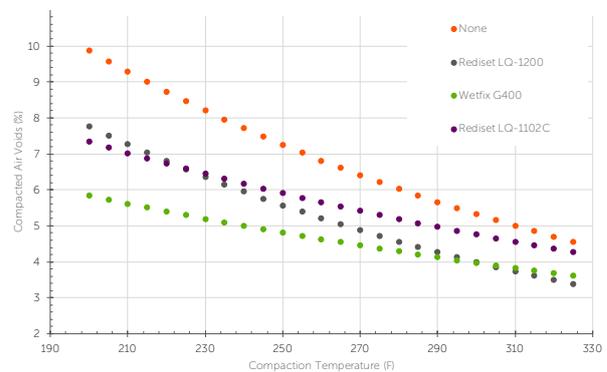
Boil test results with and without Wetfix G400 by the Vermont procedure

The graphs show results from Marshall compaction tests done at Rutgers University.

A 9.5 mm coarse-graded Asphalt mixture with PG 76-22 SBS polymer modified mix was used.



Compacted air voids using the Marshall compactor



Compactability results of asphalt binders tested using the Marshall compaction method

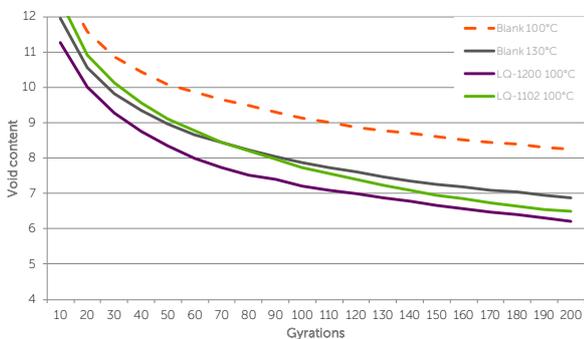
The results show that with Wetfix G400 the mixes resulted in lower air-voids at various temperatures compared to the control mix and overall Wetfix G400 gave better results compared to normal warm mix additives. Wetfix G400, which is now available globally, is a non-amine adhesion promoter/compaction aid that is not regulated as dangerous goods for transport. It also works with both siliceous and limestone aggregates, in addition to normal and PPA modified binders.

Rediset LQ-1200

This is our low odor warm mix additive and compaction aid.

Warm mix additives are used more and more these days to improve workability and compaction of difficult mixes with stiff polymer modified binders, SMA aggregate gradings and others. They are also used to facilitate paving of materials in cooler weather and over long hauls. In most of these situations where mixes are produced at temperatures up to 160°C or even above there is a demand for additives that do not exhibit significant odors during production and paving.

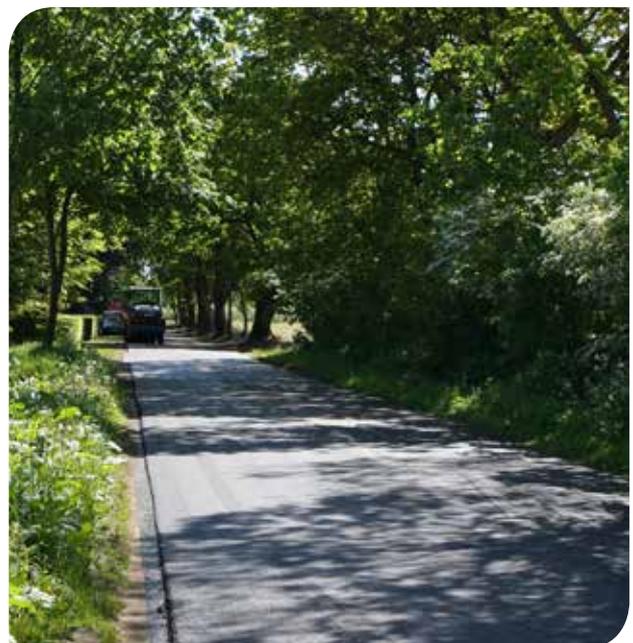
Rediset LQ-1200 is designed to have the lowest amount of volatiles and odor at these higher temperatures and is also made with surfactants that do not undergo decomposition to emit further odor at these temperatures. Rediset LQ-1200 has a flash point of 230°C which is well above the bitumen storage and hot-mix production temperatures. Workability and compaction tests done in our lab show that it gives equal or better results compared to other warm mix additives.



Workability and compaction test results

Rediset LQ-1200 is heat stable and so performance is maintained after long storage in hot bitumen. Rediset LQ-1200 also provides

a high degree of adhesion performance alone so, the use of an additional adhesion promoter is not necessary. According to field trials and customers, mixes made with Rediset LQ-1200 exhibit no odor and are equal or better in performance compared to more conventional warm-mix additives. Rediset LQ-1200 is now available globally as a warm-mix additive and compaction aid.



Redicote E-4900

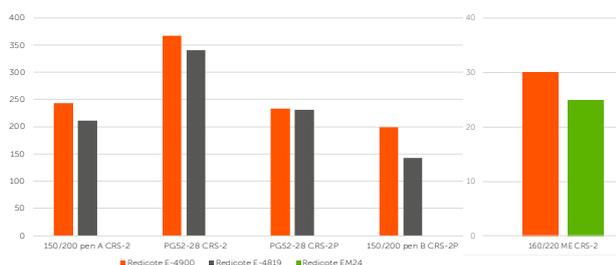
100% active liquid viscosity building Cationic Rapid Set (CRS) emulsifier

CRS emulsifiers that develop high viscosity save binder costs by enabling emulsion producers to meet the desired viscosity in the CRS emulsions with the minimum binder content. This is especially an advantage in latex modified emulsions and some polymer modified emulsions that tend to give lower viscosity. Some of the viscosity building emulsifiers are pasty products at ambient temperatures. Redicote E-4900 emulsifier is based on fatty amine chemistry which remains low viscosity liquid down to 5°C.

Emulsion viscosity

In most cases the viscosity of Redicote E-4900 emulsions are higher compared to other emulsifiers.

CRS-2 emulsion viscosity: Redicote E-4900 gives high CRS-2 and CRS-2P emulsion viscosity, comparable to that with Redicote E-4819, even higher than Redicote EM24 which are widely used emulsifiers giving high viscosity



CRS-2 emulsion viscosity results of various emulsifiers

Low viscosity and easy to handle product

Redicote E-4900 is a 100% active, solvent free liquid product with low viscosity and pour point. However, the soap preparation needs to be done at water temperatures above 104°F/45°C with good mixing for complete dissolution of the emulsifier.

Low use level

The typical dosage for Redicote E-4900 is between 0.15 to 0.22% by the weight of the rapid set emulsion. It gives fine particle size compared to other emulsifiers at the same dosage.

Demulsibility and breaking index

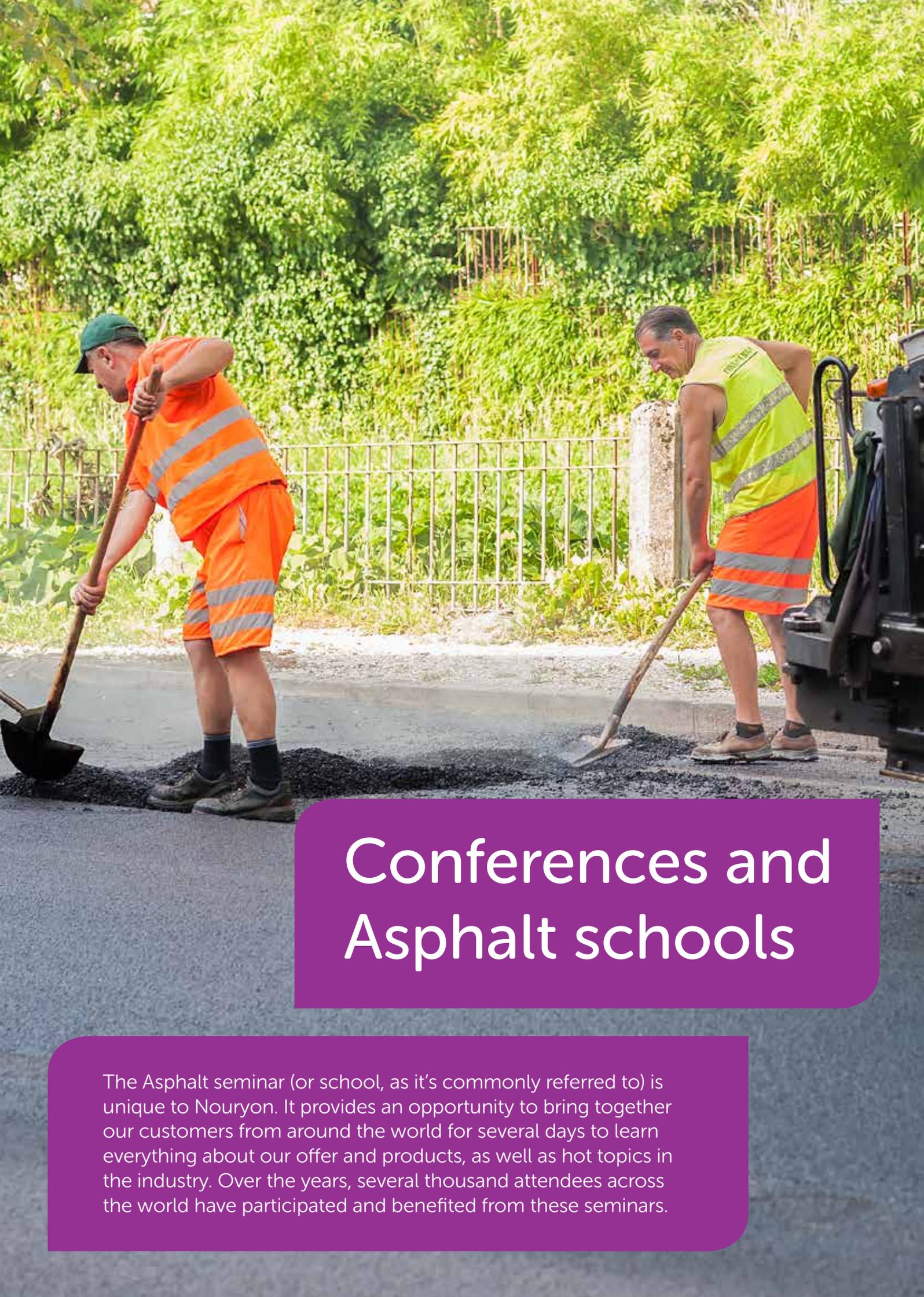
Rapid set emulsions made with Redicote E-4900 exhibit higher demulsibility and lower breaking index compared to other typical CRS emulsifiers.

Summary of advantages:

- Builds high viscosity in CRS emulsion
- Gives fine particle size distribution at low emulsifier dosage
- 100% active, low viscosity liquid down to 5°C
- Gives higher demulsibility, lower breaking index and good adhesion
- Suitable for all CRS including latex modified or emulsions made with PMB

Emulsion produced with Redicote E-4900 has been successfully used in several projects in the in North America and in other regions.





Conferences and Asphalt schools

The Asphalt seminar (or school, as it's commonly referred to) is unique to Nouryon. It provides an opportunity to bring together our customers from around the world for several days to learn everything about our offer and products, as well as hot topics in the industry. Over the years, several thousand attendees across the world have participated and benefited from these seminars.

Asphalt seminar in Bangkok, Thailand

In March 2019 our first ever Asphalt and Asphalt emulsion seminar for South East Asia (SEA) customers and distributors was held in Bangkok. It was a huge success with over 75 attendees from various customer and distributor companies from a wide range of countries in the region, including Brunei, China, Indonesia, Korea, Malaysia, Mongolia, New Zealand, Philippines, Singapore, Thailand, and Vietnam.



Asphalt school in Costa Rica

Another Asphalt School was successfully conducted in Costa Rica for our Latin American Customers in May 2019 in cooperation with University of Costa Rica. There were 94 attendees from various customer companies. There were laboratory demonstrations following lectures and 1-hour individual meetings with several customers. The customer reviews have been very positive.



Similar schools were held in other regions in 2019 as well, including Danbury, CT, USA in March, Shanghai, China in April, Lviv, Ukraine in October and Stenungsund, Sweden in November.

The next North American school is scheduled for March 3-5th 2020 in Danbury, CT and the lab sessions will be conducted at our labs in Brewster, NY.

Inside Nouryon Asphalt applications



Do you know ...

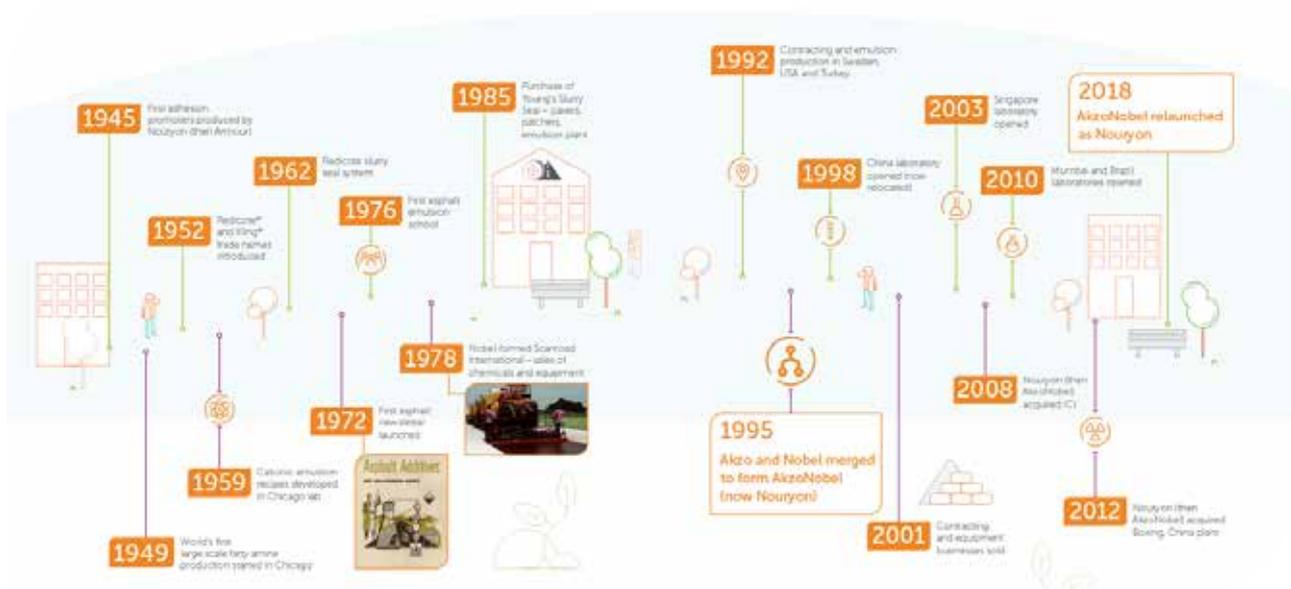
Todd Ryne, Global Marketing Director, is in the 2nd year as President of the Asphalt Emulsions Manufacturers Association (AEMA).

AEMA exists to promote the increased and more efficient use of asphalt emulsions. Since 1973, the association has served as a forum for discussion, a clearinghouse of information and a platform of action for the asphalt emulsion industry.

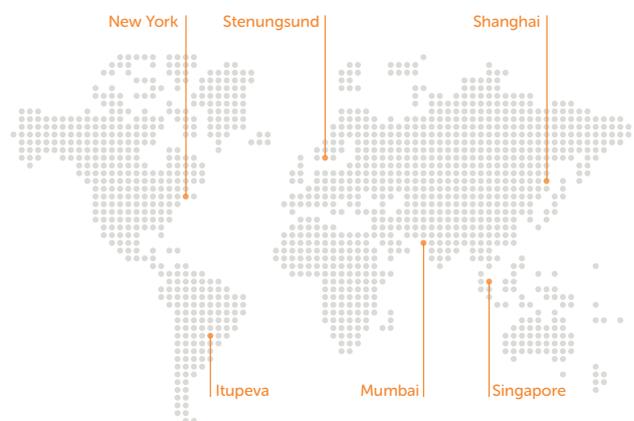
Through its meetings, seminars, website, and publications, AEMA has helped to bring state-of-the-art asphalt emulsion technology to all parts of the world. AEMA is part of the Pavement Preservation & Recycling Alliance (PPRA) which has launched a free website to promote the use of Pavement Preservation & Recycling to road owners which can be found at RoadResource.org.

We are now Nouryon Asphalt applications

In October 2018 AkzoNobel completed the sale of its Specialty Chemicals division to the Carlyle Group and GIC and the new company Nouryon emerged. After restructuring of the entire company, Asphalt applications became part of the Construction Specialties business line which is under the Performance Formulations business unit. Asphalt applications has been part of the company history dating back to the 1940s as shown below.



We continue to be 'Your trusted provider of optimized local solutions to Asphalt customers worldwide'. We provide proven high quality products for all bitumen applications including emulsions, hot and warm mix and non-paving applications. We have well equipped research and technical support laboratories in various parts of the world including, Brewster (NA), Stenungsund (Sweden), Itupeva (Brazil), Mumbai (India), Shanghai (China) and Singapore. We have highly skilled technical staff and a technically sound sales and marketing team dedicated to our Asphalt customers. The various labs are essential in providing technical support based on local materials according to local specifications.



Meet our new Account Managers



Joe Brandenburg

Joe has 20 years of experience in the asphalt industry as technology specialist and in sales and marketing. He is the North American Account Managers for customers in the Midwest region.

Mike Jenkins

Mike has 23 years of experience in the asphalt industry in various capacities including technical marketing and sales. He is the North American Account Manager for customers in the Southeast region.



Sue Sasse

Sue has 9 years of sales and business development experience including 3 years in the Asphalt Industry. She is the North American Account Manager for customers in Western US and Western Canada.



Juan Alvarez

Juan has a master's degree in organic chemistry and has 25 years of experience in R&D, tech service and sales. He currently has sales and tech service responsibility for Mexico and Central America.



Naruesa Riwotong

Naruesa has 18 years of experience in sales and marketing including 2 years in the Asphalt industry. She is the Account Manager for customers in South East Asia.

Jackline Nkumba

Jackline has 10 years of experience in sales and business development including 3 years in the Asphalt industry. She is the Account Manager for the Southern African region.



Look for our next issue,
coming during fall 2020

Contact us directly for detailed product information
and sample request at asphalt@nouryon.com

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We are a global specialty chemicals leader. Markets worldwide rely on our essential chemistry in the manufacture of everyday products such as fuels, plastics, coatings, asphalt, agrochemicals, personal care and lubricants items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability and innovation, we have established a world-class business and built strong partnerships with our customers. We operate in over 80 countries around the world and our portfolio industry-leading brands includes Redicote®, Rediset®, Wetfix®, and Kling® Beta.

For more information visit
surfacechemistry.nouryon.com/markets/asphalt

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