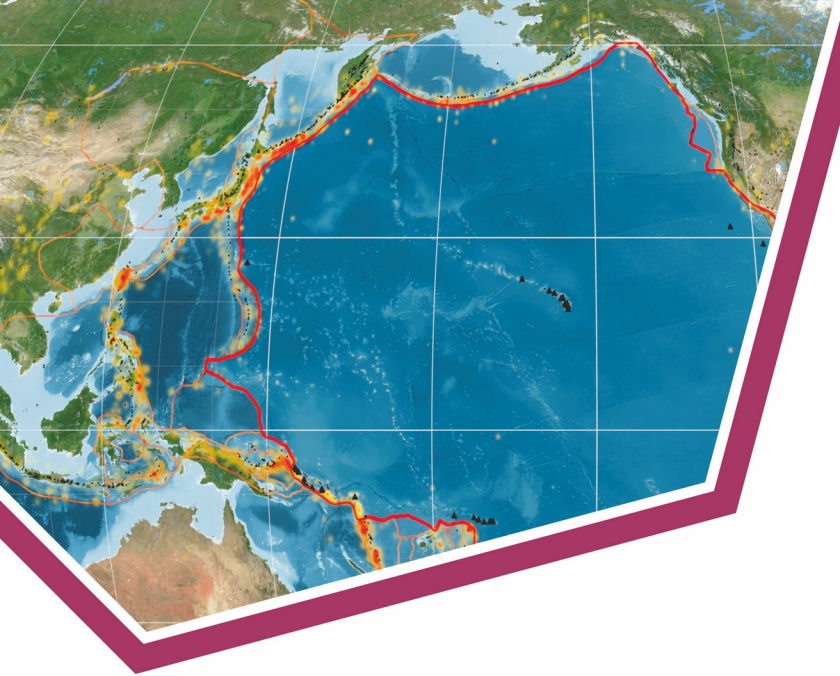


Marubeni



CONSTRUCTION CHEMICALS



BUILDING FOR TOMORROW'S FUTURE...

Japan, situated on the "Ring of Fire" arc of volcanoes and ocean trenches that partly encircles the Pacific Basin, accounts for about 20% of the world's earthquakes of magnitude 6 or greater.

Given this propensity to experience earthquakes, Japan has cultivated technologies for inspecting and improving upon the structural components of bridges, tunnels, highways, high rise buildings, dams and other structures critical to modern society.

Our mission is to bring these technologies to the rest of the world to create a safer modern infrastructure that withstands the tests of time.

OUR CONSORTIUM

Denka Company Limited

Since its founding in 1915, Denka has worked on global scale across a wide range of fields, from inorganic and organic chemicals, to electronic materials and pharmaceuticals. Through their knowledge of cement and chemicals, Denka's natural path was to develop Cement Admixtures with a special focus on Calcium Sulfo Aluminate (CSA) chemistry. Denka continues to be a leading pioneer in meeting various needs in the fields of Civil Engineering and Construction.

Denka


NOF Corporation

Since its founding in 1937, NOF has stayed true to their philosophy of "Contributing to Society by Pioneering New Technologies in Fields Ranging from the Biosphere to Outer Space". Their research into highly functional solid surfactants and dispersants lead to the discovery of novel concrete water reducing agents and superplasticizers, along with dispersants for the ceramics industry.

 **NOF CORPORATION**

Japan Coating Resin Corporation

As part of Mitsubishi Chemical Holdings Group, Japan Coating Resin (JCR) remains an integral part of the largest chemical manufacturer in Japan. JCR is the leading provider of emulsion and redispersible polymer powder technologies to the Japanese construction market, striving for continuous quality and innovation improvements for the benefit of the Construction industry.

 **Japan Coating Resin Corporation**

Sumitomo Seika Chemical Co., LTD.

Founded as a fertilizer company in 1944, Sumitomo Seika shifted its core business to industrial chemicals. In the Functional Chemical Division, which is one of their main businesses, Sumitomo manufactures and sells various water-soluble polymers for use as rheology modifiers, friction reducing aids, self-leveling agents etc. in cementitious and non-cementitious construction products.

 **SUMITOMO SEIKA**

NEXCO-West USA

NEXCO-West USA Inc. is a professional engineering company specializing in the use of indirect and rapid scanning technologies for identifying the strengths and defects in large scale infrastructure and construction systems. They provide reliable results using a broad spectrum of computer integrated infra-red and topographic scanning systems while reducing the time and cost of inspection. Making a contribution to the safety and serviceability of the world's infrastructure is their main priority.


**NEXCO
WEST**

Marubeni America Corporation

The Specialty Chemicals (SCHM) division of Marubeni America Corporation is an importer, exporter and distributor of specialty chemicals and plastics materials. We engage in the global sourcing, marketing, technical support, logistics and warehousing of chemicals. Our products and chemicals are tailored for various applications and industries, including, but not limited to, Packaging Plastics, Coating Chemicals, Plastic Additives, Water Treatment, Electronic Chemicals and Automotive Plastics. Marubeni is also invested in and offers solutions to the Concrete & Construction Industry.

Marubeni

APPLICATION AND PRODUCT TREE

PRODUCT, SERVICE OR PERFORMANCE NEED

Marubeni brings you the very best in Japanese product and service technologies!

INSPECTION, DETECTION NEED?

NEXCO WEST

WATERPROOF

2 Methods

ADDITIVE

ORGANIC vs.
INORGANIC

INORGANIC POWDER

DENKA
SHAGUARD

COATING

SUMITOMO SEIKA
ZAIKTHENE or
SEPOLSION

ORGANIC POWDER

NOF
SYUDOX PR-11LS

ACCELERATOR

DENKA
Multiple Grades

PLASTICIZER / WATER REDUCER

NOF

POWDER

WRP-150A

LIQUID

AKM-60F or
WR-150TW

SHRINKAGE COMPENSATION

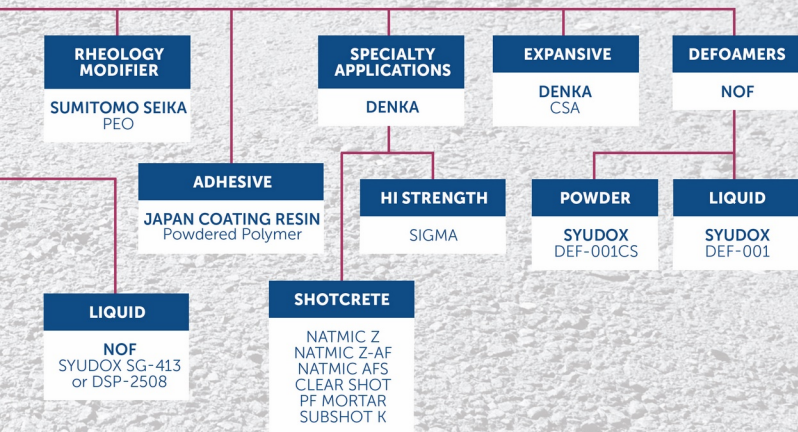
2 Forms

POWDER

NOF
SYUDOX DF-40

DENKA
PRETASCON grades

DENKA
CSA



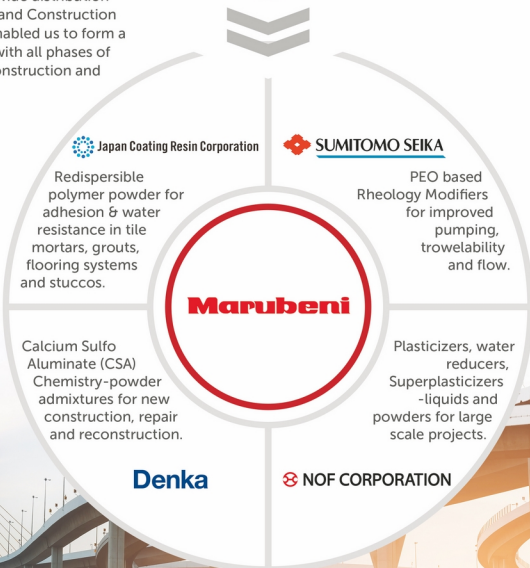
CONSTRUCTION CHEMICALS CONSORTIUM

As one of America's largest chemical distributors, Marubeni excels at bringing Japanese Technology to the Americas. Our worldwide distribution network, financial strength and Construction Industry knowledge have enabled us to form a consortium that can assist with all phases of concrete construction, reconstruction and maintenance.

ADVANCED CHEMICAL TECHNOLOGIES FOR CONCRETE CONSTRUCTION AND REPAIR



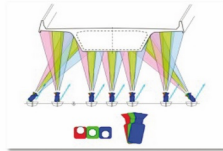
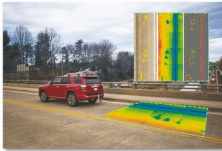
EVALUATING STRUCTURAL CONDITIONS USING NON-DESTRUCTIVE TECHNOLOGIES



NEXCO-WEST USA

WHAT DOES OUR TECHNOLOGY DO?

NEXCO-West USA's Bridge Inspection Technology combines two systems to provide a comprehensive evaluation of the entire bridge structure. Both the Deck Top Scanning System (DTSS) and Underside Structure Scanning System (U3S) combine visual and Infrared imaging systems to generate a dual image of the bridge. This combination provides a comprehensive display of superficial cracks and subsurface delaminations that allows for data-driven, objective decision making for structural maintenance.



BENEFITS OF USING OUR SYSTEMS

The operating speeds of DTSS (10 - 70mph) rule out the necessity of lane closures even in times of heavy traffic, while U3S provides virtual access to the sub-structures of the bridge regardless of its location (over water and/or above ground). The analyzing process is conducted off-site allowing for a reduction of about 20-30% of labor time and money, as well as an increase in safety for the inspectors. The deficiency map generated provides the amount of area in need of repair used to accurately estimate total cost for rehabilitation bids.

ACCREDITATIONS

NEXCO-West USA's Bridge Inspection Technology already satisfies major requirements and recommendations laid out by the Federal Highway Authority (FHWA), FTA, AASHTO element condition inspection, USDOT, and state DOTs. Our technology is determined by SHRP2 and other research plans to be one of the most effective and reliable NDT methods.

TESTIMONIALS

"Since 2012, The University of Central Florida has been partnering with NEXCO-West USA, Inc. to conduct a successful on-site pilot application using the bridge deck scanning technology. The Florida Department of Transportation found that the technology has excellent potential for transportation agencies to improve and enhance the repair decision making process."

F. Necati Catbas, PhD, P.E.
Professor of Civil Engineering



"Since 2014, Florida's Turnpike has participated in two on site bridge deck scanning projects with NEXCO-West USA, and has successfully identified deficiencies within our target structures. We agree that the use of the technology has significant potential for transportation agencies to improve their corridor/network level bridge deck inspection programs."

Aran M. Lessard, P.E. Structures
Maintenance Engineer



"The experience provided us with insight into the challenges of scanning decks of long span bridges that carry large traffic volumes. The NEXCO scan emerged as the only feasible tool, as currently available nondestructive tools were clearly observed to be too slow and impractical. Therefore the opportunity of exploring a realistic scenario by scanning a real interstate viaduct proved priceless."

Dr. Emin Aktan, PhD
Intelligent Infrastructure Alliance



NOF CORPORATION

MALIALIM® AKM-60F AND EKM-60K (SUPERPLASTICIZER)

MALIALIM® AKM-60F and EKM-60K developed by NOF corporation are high performance air entraining reducer, manufactured from selected pure high molecular weight materials to give optimum workability or high power water reduction capabilities about concrete.

PROPERTIES	MALIALIM® AKM-60F	MALIALIM® EKM-60K
Specific Gravity (25°C)	1.12 ± 0.02	1.12 ± 0.02
pH (25°C)	2.5 ± 1.0	5.5 ± 1.0
Chloride Content (%)	< 0.01	< 0.01
Alkali Content (%)	< 0.10	< 0.20
Appearance	Amber Liquid	Amber Liquid

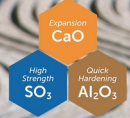
SYUDOX® SERIES

SYUDOX® SP Series, DSP-E Series, and DF-40 are all powder type dry shrinkage reducing agents (SRA) developed for premix products, such as polymer cement mortar.

ITEMS		APPEARANCE	APPLICATION							
			Concrete Product	Premixed Lightweight Mortar for Wooden House	Premixed Lightweight Mortar	Polymer Cement Mortar	Cement Based Self-Leveling Compound	Grouting Compound	Premixed Mortar for Repair	Precast Concrete
DRY SHRINKAGE REDUCING	SYUDOX® DSP-E40	POWDER	○	●	●	●	○	○	●	○
	SYUDOX® SP-01S									
	SYUDOX® DF-40	FLAKE								
	SYUDOX® DSP-2508	LIQUID	●	○	○	○	○	○	○	○
WATER REDUCING	SYUDOX® SG-413									
	SYUDOX® WRP-150A	POWDER	○	●	●	○	○	○	●	○
	SYUDOX® WR-150TW	LIQUID	○	○	○	○	○	○	○	●
DEFOAMING	SYUDOX® DEF-001-CS	POWDER	○	●	●	●	●	●	●	○
	SYUDOX® DEF-001	LIQUID	●	○	○	○	○	○	○	○
WATERPROOFING	SYUDOX® PRF-C180	POWDER								
	SYUDOX® PRF-A180		○	●	●	●	○	○	●	○
	SYUDOX® PR-30RS									
	SYUDOX® PR-11LS									

DENKA CEMENT ADDITIVES

PRODUCT CATEGORY



EXPANSIVE



Denka CSA#20* - Denka Power CSA

TUNNELLING



Denka NATMIC (POWDER ACCELERATOR)
Denka NATMIC AF-S (LIQUID ACCELERATOR)
Denka CLEAR SHOT (HYBRID ACCELERATOR)

SPRAY MORTAR

Denka PF MORTAR TYPE K

Denka SUBSHOT-K

WATER TIGHTNESS



Denka SHAGUARD*

PRECAST



Denka FINE CSA-N
Denka SIGMA

NON SHRINKAGE



Denka CSA
Denka TASCON
Denka PRETASCON

HIGH STRENGTH



Denka SIGMA

QUICK SETTING



Denka BEFORM
Denka ES
Denka SC-1
Denka Super Cement

*NTPEP Compliant; Meets ASTM C494 for Type S Admixture

JAPAN COATING RESIN

MOWINYL® POWDER (REDISPERSIBLE POLYMER POWDER)

PRODUCT	LDM7000P	LDM7100P	LDM7300P	LDM7400P	DM2072P	LDM2077P
Ionicity [1]	A	C	A	A	A	A
Chemical Composition [2]	Ac	Ac	Ac	St-Ac	VAc-VeoVa-Ac	VAc-Ac
Appearance	white powder	white powder	white powder	white powder	white powder	white powder
Tg (DSC, onset) / °C	approx. 8	approx. 8	approx. -17	approx. 0	approx. 14	approx. 10
MFT / °C	apprx. 0	approx. 0	apprx. 0	approx. 0	apprx. 0	approx. 0
Solid Content / %	99.0 ± 1.0	99.0 ± 1.0	99.0 ± 1.0	99.0 ± 1.0	99.0 ± 1.0	99.0 ± 1.0
Bulk Density g / L	450 ± 100	500 ± 100	500 ± 100	500 ± 100	500 ± 100	500 ± 100
Protective Coloid	PVOH	PVOH	PVOH/Surfactant	PVOH/Surfactant	PVOH/Surfactant	PVOH/Surfactant
Content of Grains [3]	< 3%	< 2%	< 2%	< 2%	< 3%	< 3%
Inventory Status [4, 5]						
Listed	1, 2, 5, 11, 13	1, 2, 5, 6, 8, 11, 13	1, 2, 5, 6, 8, 11, 13	1-3, 5, 6, 8, 9, 11, 13	3, 5, 6, 8, 9, 11, 13	3, 5, 6, 8-11, 13
Not Listed	7-9	7	7, 9	7	1, 2, 7, 12	1, 2, 7
Others	3, 4, 6	3, 4	3, 4	4	4, 10	4

[1] A: anionic, N: nonionic, C: cationic[1] A: anionic, N: nonionic, C: cationic

[2] Ac: Acrylic, St-Ac: Styrene-Acrylic, Vac-VeoVa-Ac: Vinyl Acetate-VeoVa-Acrylic, VAc-Ac: Vinyl acetate-Acrylic

[3] over 300µm

[4] 1: Australia AICS, 2: Canada DSL, 3: China IECSC, 4: EU REACH, 5: Japan ENCS, 6: Korea KECI,

7: Mexico INSQ, Inventario Nacional de Sustancias Químicas, 8: New Zealand NZIoC, 9: Philippines PICCS,

10: Switzerland ChemO, 11: Taiwan TCSI, 12 Thailand TECI, 13: US TSCA

[5] Contact us for the maximum quantity to be imported into EU.

MOWINYL® - POWDERS GRADE FOR DRY MORTAR FIELDS OF APPLICATION

APPLICATION	LDM7000P	LDM7100P	LDM7300P	LDM7400P	DM2072P	LDM2077P
Repair Mortar	◎	◎	◎	◎	◎	◎
Waterproofing Mortar			◎	◎		
Tile Adhesive Mortar	◎	◎	◎	◎	◎	◎
Gypsum Compounds			◎	◎		
Fireproofing Mortar				◎		
Self-leveling Compounds	◎	◎		◎		
High Grade Plasters	◎	◎	◎		◎	◎
Joint Fillers	◎	◎			◎	◎
Trowelling compounds	◎	◎			◎	◎

◎ HIGHLY RECOMMENDED

SUMITOMO SEIKA CHEMICALS

SUMITOMO SEIKA POLYETHYLENE OXIDE APPLICATIONS

CONCRETE

APPLICATION	SUGGESTED GRADE	TREAT RATE WT%	PERFORMANCE
Concrete Pumping	PEO-15	0.005 - 0.01	Lubricity assists
Asbestos Cement Extrusion Aid	PEO-15, PEO-18	0.4 Based on Dry Ingredients	Lubricity reduces energy requirements for extrusion.
Concrete & Cements	PEO-15	0.005 - 0.01	PEO can be used as a pumping aid for concrete, where the lubricity aids in the flow characteristics of cement & eases long distance pumping. PEO is also a very effective suspension aid & promotes better dispersion and uniformity of concrete powder mixtures when mixed with water.

NOTABLE PROJECTS OF OUR CONSORTIUM MEMBERS



Pahang Selangor Raw Water Tunnel (Southeast Asia)



Tokyo Dome (Japan)



Stonecutters Bridge (Hong Kong)

Marubeni

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☎ 914.428.8859

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