



Cutting Edge Liners for Protection and Restoration

NUKOTE AEGIS® SYSTEM

The **Nukote Aegis®** System combines ultra-fast elastomeric product chemistries with **Nukote 360Ringtech®** robotic application equipment to provide cutting edge solutions for both renovation and construction of liquid containment and distribution systems. **Nukote Aegis®** Liners are suitable for all substrates common to collection, storage, processing and delivery of liquid systems. **Nukote Aegis®** provides a competitive alternative to CIPP, PVC, Rubber and other slip lining technologies. **Nukote Aegis®** is sprayed in place (SIP) with no loss of functionality at transitions, laterals, risers, tanks or vaults, delivering a completely seamless system.

Nukote Aegis® provides fast track installations, without excavation and minimal disruption to traffic flow. **Nukote 360Ringtech®** robotics quickly deliver consistent liner thicknesses, are controlled remotely, expedite project delivery and significantly reduce confined space manpower costs.

Nukote Aegis® liner formulations are interchangeable dependent on the effluent, providing versatility unmatched by conventional liners. **The Nukote 360Ringtech®** robotic application process is identical, simply changing the elastomeric product utilized allows for use in all possible effluent types.

NUKOTE AEGIS® SUITABILITY

- Industrial liquid systems including; chemicals, process water, and hazardous waste
- Domestic liquid systems including; desalination, potable water, and sanitary sewer
- Petrochemical liquid systems including; crude oil and refined fuels
- Nuclear liquid systems including; cooling and contaminated waste water
- Mining liquid systems including; chemicals, slurries and process fluids
- Hydro Electric liquid systems including; penstocks, spillways and silt relief conduits



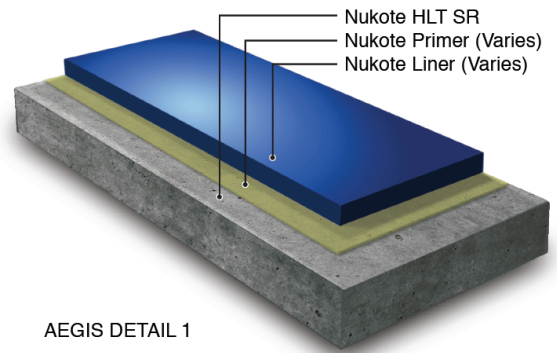
Nukote Aegis® Liners are installed using high pressure, heated, plural component proportioning equipment. The applications are performed either manually or utilizing **Nukote 360Ringtech® Robotics**.

Nukote Aegis® Liners are widely used in North America and Globally. Major project references are available on request.

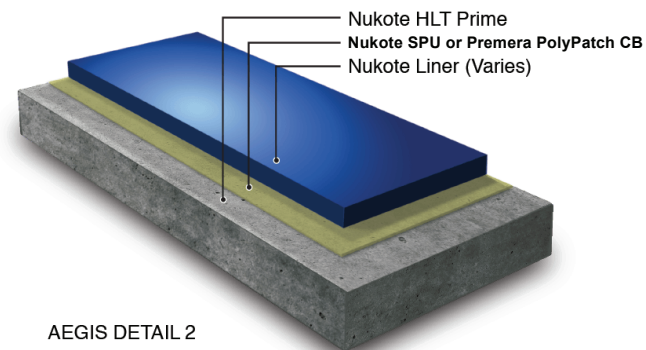
Nukote Aegis® Liners are installed to specifications which meet both the client's requirements and relevant government standards including all AWWA variations, ANSI NSF and AASHTO.

Nukote Aegis® Liners are suitable for new construction and rehabilitation on all substrate types.

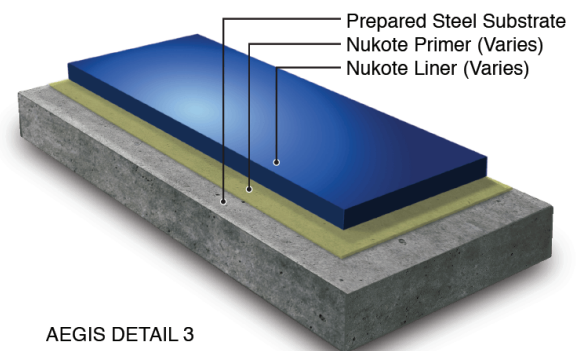
Nukote Aegis® Liner formulations vary for use in specific effluent types; domestic and industrial waste, storm water, potable water, extreme abrasion or erosion common to penstocks and spillways and where the structural integrity of the pipe, basin or vault is compromised.



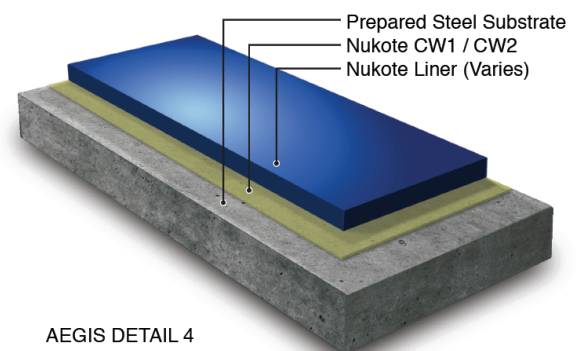
AEGIS DETAIL 1



AEGIS DETAIL 2



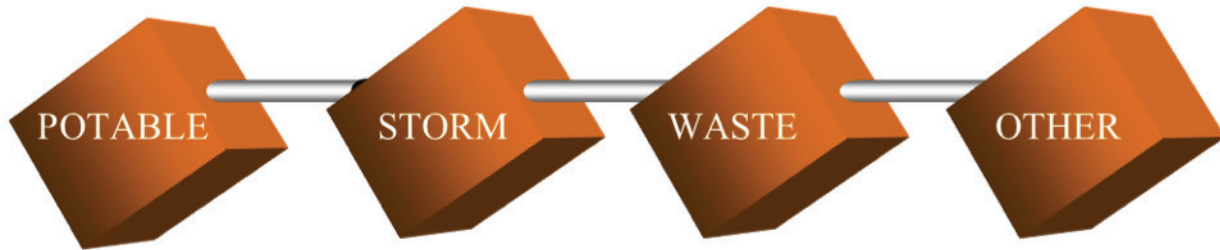
AEGIS DETAIL 3



AEGIS DETAIL 4



Nukote Aegis® Liners differ depending on the effluent type, abuse levels, abrasion, ground movement, substrate condition and other design variables. The application processes are similar, the liner formulation utilized is variable.



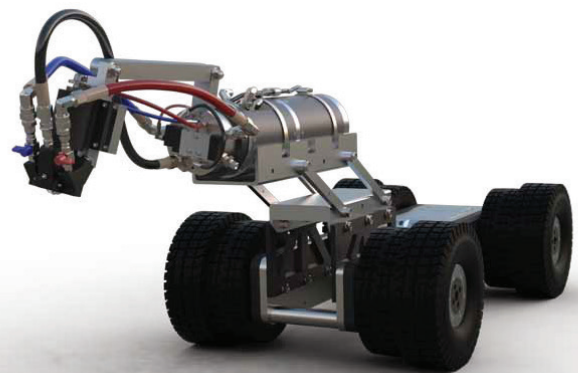
Nukote HLT	Nukote HLT	Nukote HLT	Nukote HLT
Nukote EP II	Nukote EP II	Nukote EP II	Nukote EP II
Nukote MP I	Nukote MP I	Nukote MP I	Nukote MP I
Nukote PP II	Nukote PP II	Nukote PP II	Nukote PP II
Nukote PP300	Nukote PP300	Nukote PP300	Nukote PP300
Nukote ST PW	Nukote HTD	Nukote ST M	Nukote HAR
Nukote PU PW	Nukote ST M	Nukote XT PLUS	Nukote HCR
Premera CW	Premera CW	Premera CW	Premera CW
Premera AE T7	Premera AE T7	Premera AE T7	Premera AE T7
Premera AE T7 LF	Premera AE T7 LF	Premera AE T7 LF	Premera AE T7 LF
Premera MI Prime	Premera MI Prime	Premera MI Prime	Premera MI Prime
Premera MI Seal	Premera MI Seal	Premera MI Seal	Premera MI Seal
Premera PolyPatch CB	Premera PolyPatch CB	Premera PolyPatch CB	Premera PolyPatch CB

Nukote Aegis® Liner products include; concrete and steel surface treatments, primers, urethane foams, elastomeric polyureas and polyurethanes, structural hybrid elastomers, nano adhesion enhancers and injection resins. The products utilized are specified depending on each projects unique requirements.



NUKOTE AEGIS® Features and Benefits

- > Suitable for all substrate types and conditions
- > Designed and engineered by Nukote
- > Offering solutions from basic anti-corrosion to full structural
- > Applicable in pipe, vaults, tanks, basins and manholes
- > Suitable for use with all effluent types / multiple liner variations
- > Meets all AWWA requirements / M28 Class I, II, III, IV
- > Meets all AASHTO requirements/HS-20-44 Live Load for Traffic
- > Direct to substrate, not grouted, minimizing flow reduction
- > Capable for pipe diameters from 24"/ 0.6m to 160"/ 4.1m
- > Installs robotically reducing; excavation, traffic control, HSE
- > 1,148' / 350m of reach from access point to access point
- > Spans damaged, deteriorated or missing substrates
- > Extremely durable, flexible and resilient
- > Fast application process, minimizing system down time
- > Lower costs compared to conventional liner system
- > Design life of < 75 Years
- > Warrantable for up to 25 Years



NUKOTE AEGIS® Lining Systems

Combining advanced elastomeric products with cutting edge robotics

Specific Aegis Project Examples

Beijing Potable Water Mains Restoration Project
Rehabilitation of Portable Water Mains
China 2005-2008

Bangalore Sewage Treatment Project
Primary Sewage Collection Pipeline
India 2009-2015

Space Center Boulevard Project
Storm Sewer System Rehabilitation
United States 2017

Nanhua Silt Relief Project
Lining 30' Diameter Silt Penstocks
Taiwan 2017-2018

Barker Reservoir Flow Line
Rehabilitation of Potable Water Line
United States 2018

Toronto Combi Storm-Sewer Pilot
Rehabilitation of Collection Mains
Canada 2019

Structural Arch Culverts
Highway Bridge Culvert Rehabilitation
United States 2019

Manhole Rehabilitation Projects
Lining of Manholes Multiple States
United States 2014-2019

SELECTION GUIDE BY PRODUCT

		AEGIS QUICK PICK GUIDE						
Nukote Product	Product Formulation	Product Type	Robotic Application	Manual Application	ANSI-NSF Certified	Substrates	Principal Application Use	
Nukote HLT	Single component colloidal silicate	Surface Treatment	Yes	Yes	N/A	Concrete	Concrete substrate pre-treatment to neutralise hydrosotatic pressure	
Premera CW	Single component oxidation remover	Surface Treatment	Yes	Yes	N/A	Steel	Steel surface pre-treatment to neutralise oxidation and flash back rust	
Premera AE T7	Single component nano adhesion promoter	Primer	Yes	Yes	N/A	All	Primer for use on all substrates at temperature above 32° F/0°C	
Premera AE T7 LF	Single component nano adhesion promoter	Primer	Yes	Yes	N/A	All	Primer for use on all substrates at temperature avobe 32°F/0°C	
Nukote EP II	Plural component epoxy adhesion promoter	Primer	Yes	Yes	N/A	Concrete	Primer for use on concrete at temperatures above 40°F/7°C	
Nukote Metal Prime I	Plural component epoxy adhesion promoter	Primer	Yes	Yes	N/A	Steel	Primer for use on concrete at temperatures above 40°F/7°C	
Nukote Polyprime II	Plural component urethane adhesion promoter	Primer	Yes	Yes	N/A	All	Primer for use on all substrates at temperatures above 32°F/0°C	
Nukote HAR	Plural component elastomeric liner	Polyurea	Yes	Yes	N/A	All	Elastomeric liner product for use in high abrasion or erosion systems	
Nukote HCR	Plural component elastomeric liner	Modified Plyurea	Yes	Yes	N/A	All	Elastomeric liner products for use in hydrocarbon effluent systems	
Nukote PP 300	Plural component elastomeric liner	Polyurea	Yes	Yes	Yes	All	Structural liner product for use in all systems	
Nukote ST-M	Plural component elastomeric liner	Polyurea	Yes	Yes	N/A	All	Elastomeric liner product for use in all system types	
Nukote ST-PW	Plural component elastomeric liner	Polyurea	Yes	Yes	Yes	All	Elastomeric liner product for use in all system types	
Nukote PU-Pw	Plural component elastomeric liner	Polyurethane	Yes	Yes	Yes	All	Elastomeric liner product for use in all system types	
Nukote XT Plus	Plural component elastomeric liner	Modified Polyurea	Yes	Yes	Yes	All	Elastomeric liner product for use in chemical effluent systems	
Premera MI Prime	Plural Component Epoxy Primer	Primer	Yes	Yes	N/A	Concrete	Moisture insensitive primer	
Premera MI Seal	Plural Component Epoxy Coating	Epoxy	Yes	Yes	Yes	All	Moisture insensitive coating	
Premera Polypatch CB	Structural Epoxy Mortar	Surface Treatment	No	Yes	N/A	Concrete	Mortar for structural reapir on concrete	

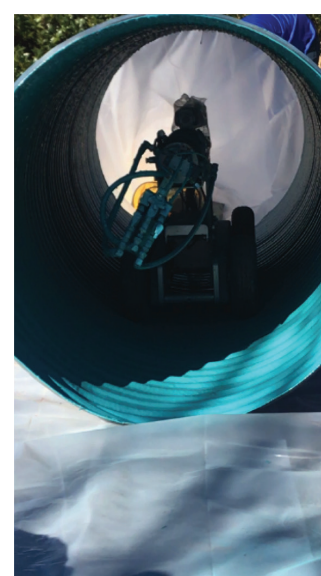
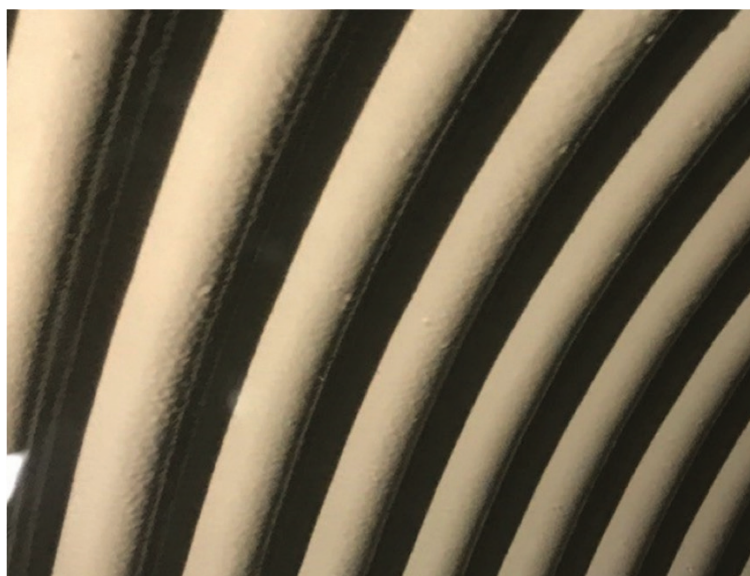
LINER PRODUCT TECHNOLOGY

The Aegis® liner system utilizes super-fast gel elastomeric products, that are spray applied in a composite of two products, delivering the physical properties required in underground pipe and culvert rehabilitation.

These composites provide:

- > The required high ring stress, derived from the structural portion of the composite
- > High erosion/impact resistance, derived from the elastomeric portion of the composite
- > 4-5 second gel/30 second tack free allowing both forward and reverse application at high builds
- > Fast cure, allowing for light traffic in 1 minute and back in service immediately
- > No VOC/ 100% solids
- > Completely inert. Can be disposed on in a common landfill
- > ANSI-NSF approved on most product used

By composite we mean two distinct products with different properties, applied robotically and monolithically (no layers)



US Toll Free: +1.800.320.4510 | Email: info@nukoteglobal.com

**Global Headquarters**

Nukote Coating Systems International
Texas USA

**US Central Manufacturing
North American Operations**

Bedford, Texas USA

**US West Manufacturing
Research & Development Center**

Santa Fe Springs, California USA

Asean Operations & Distribution

Creative Engineering / Ho Chi Minh, Vietnam

Australia Operations & Distribution

Nukote Distributors / New Castle NSW Australia

China Distribution

Creative Engineering / Shanghai China

Eastern Canada Distribution

Infrastructure Coatings Corporation
Toronto, Ontario Canada

India Distribution

Structural Specialties & Projects / Mumbai India

Japan Distribution

Kanamori Co Ltd / Tokyo Japan

Mexico Distribution

Nukote Mexico, Monterey Mexico

Middle East Manufacturing & Operations

Nukote Arabia / Damman Kingdom of Saudi Arabia

Mongolia Distribution

Mergen Engineering Services / Ulaanbaatar
Mongolia

South American Manufacturing & Operations

FCC Nukote Industria E Comercio SA
Campo Bono Brasil

Taiwan Distribution

Integral / Kaohsiung Taiwan

Turkey Distribution

CRAS Solutions / Istanbul Turkey

Western Canada Distribution

Infrastruct / Edmonton Canada

Nukote Coating Systems International, LLC

2100 Reliance Parkway, Bedford, TX 76021 USA

Phone: +1.832.770.7100 • US Toll Free: +1.800.320.4510 • FAX: 281.227.0909

info@nukoteglobal.com • <http://www.nukoteglobal.com>