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May 14, 2021

Ben Callan
Wisconsin Department of Natural Resources
Chief, Integration Services Section
Environmental Analysis & Sustainability Program
101 South Webster Street
Madison, WI 53707-7921

Re: Line 5 Wisconsin Segment Relocation Project CN Railroad casing additions

Dear Ben:

As discussed in Enbridge Energy, Limited Partnership's ("Enbridge") Environmental Information Report ("EIR", Section 4.1) for the proposed Line 5 Wisconsin Segment Relocation Project ("Project"), Enbridge would construct the Project using modern pipeline design, manufacturing, coating, and installation techniques. As a crude oil and Natural Gas Liquid (NGL) pipeline, the Project's design, construction, maintenance, and operation functions are regulated by PHMSA under 49 CFR Part 195, which governs transportation of hazardous liquids by pipeline. The design of the pipeline system would also comply with the industry standards (e.g., American Society of Mechanical Engineers/American National Standards Institute Code B31.4, American Petroleum Institute ("API") 570, API RP 1102, among others). Additionally, major oil pipelines must comply with other pertinent industry standards.

Section 4.3.12 of the EIR discusses Enbridge's crossing of roads and railroads. The proposed Project will cross four railroad lines owned by the Canadian National Railway company ("CN") located at approximately mileposts ("MP") 15.23, 16.13, 24.15, and 39.22). Enbridge currently plans to complete pipeline installation at two railroad crossings (MP 16.13 and 39.22) using the conventional bore method and two crossings (MP 15.23 and MP 24.15) using the horizontal directional drill ("HDD") method. Enbridge has been in discussion with CN regarding special requirements to cross beneath the railroads. CN will require that the pipeline be installed within a casing pipe to prevent potential settling/subsidence that could affect the integrity of the railroad tracks.

Enbridge is submitting the following supplemental information regarding CN's requirement to install the pipeline in a casing at each of the four proposed crossing locations.

<u>HDD Crossings:</u>
Enbridge proposes to case the HDD railroad crossings with a nominal 42 inch outside diameter, API 5L - X70 (70,000 Specified Minimum Yield Strength ("SMYS")) grade pipe with a 0.75 inch wall thickness.

Installation of the casing will occur in the same manner as a conventional HDD. The HDD rig would be used to establish a pilot hole from the drill entry location to the exit location, then a series of reaming tools would be used to expand the diameter of the hole to accommodate the 42-inch diameter casing pipe. The casing pipe would be assembled (strung, welded and inspected) on grade and supported on skids or rollers so that it can be pulled into the final reamed bore hole in one continuous section.

Enbridge would install the casing pipe for the full length of the HDD. Hydrostatic testing of the casing is not required.

Enbridge would assemble the mainline HDD pipeline segment ("carrier pipe") similar to the casing pipe. The mainline pipe specifications would be the same as previously described in Table 4.1-1 of the EIR. Enbridge would test the HDD segment in accordance with the U.S. Department of Transportation pipeline safety regulations, Title 49 CFR Part 195.302(a) requirements, Enbridge testing specifications, and applicable permit conditions to verify the integrity of the pipeline prior to installation. The HDD segment of pipeline would be tested a second time as part of the mainline hydrostatic testing activities. Once assembled and tested, the carrier pipe would be pulled into the casing using wheeled casing spacers. A vapor corrosion inhibitor ("VCI") will be installed on the pipeline at a rate of approximately 0.33 pounds per foot prior to being pulled into the casing. Enbridge proposes to use Zerust Excor Zerion FVS Series as the VCI, which will come in bags to be strapped to the pipeline. The SDS for the Zerust Excor Zerion is attached (Attachment 1). Once the carrier pipe is pulled into the casing, end seals will be installed to make an enclosed system.

Conventional Bore Crossings:

Similar to the HDD casing pipe, the casing for the conventional bores underneath the two railways will be a nominal 42 inch outside diameter long seam pipe with a 0.75 inch wall thickness. The pipe grade specified is API 5L - X70 (70,000 Specified Minimum Yield Strength (SMYS). The casing will be assembled (strung, welded and inspected) on grade supported on skids or rollers so that it can be pulled into the final reamed bore hole in one continuous section. The preassembled carrier pipe would then be inserted into the casing pipe.

For both the HDD and conventional bore casings, Enbridge would install a local anodes corrosion protection system that would remain independent and electrically isolated from the main cathodic protection, impressed current system.

If you have questions about the information presented in the attached materials, please contact me at (218) 390-9254.

Sincerely,

Joe McGaver, PE
Technical Manager Environment
Enbridge Energy, Limited Partnership

Enclosures:

- Attachment 1: SDS for Zerust Excor Zerion FVS Series VCI

cc: w/o enclosures: Adam Mednick, Wisconsin Department of Natural Resources
Bill Sande, U.S. Army Corps of Engineers

Attachment 1

Line 5 Wisconsin Segment Relocation Project

Enbridge Energy, Limited Partnership

Zerust Excor Zerion FVS Series

Safety Data Sheet

Zerion® FVS Series

Safety Data Sheet 20-059

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Date of issue: 1/29/2019 Revision date: 1/29/2019 Supersedes: 1/21/2019 Version: 4.2

SECTION 1: Identification

1.1. Identification

Product form : Mixture

Trade name : Zerion® FVS Series

Synonyms : Zerion FVS, Zerion FVS-B15, Zerion FVS-B165, Zerion® FVS-B Series, Zerion® FVS Demo Kit, Zerion® FVS Sleeve Assembly, Zerion® FVS-S10 Mesh Sleeve, Zerion® FVS-S15 Dual Sleeve Assembly, Zerion® FVS S-2 Packet

Other means of identification : EU SDS: 10-059

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Corrosion inhibitors

1.3. Supplier

Northern Technologies International Corporation
4201 Woodland Road
P.O. Box 69
Circle Pines, MN 55014 - United States
T +1 763-225-6600 - F +1 763-225-6645
msds@ntic.com - www.zerust.com

1.4. Emergency telephone number

Emergency number : Carechem +1 202 464 2554; Outside US/Canada +44 1865 407333 (24 hours; 7 days/week)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Acute toxicity (oral), Category 4	Harmful if swallowed.
Serious eye damage/eye irritation, Category 2	Causes serious eye irritation.

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Warning

Hazard statements (GHS US) : Harmful if swallowed.
Causes serious eye irritation.

Precautionary statements (GHS US) : Wash hands thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear eye protection, protective clothing, protective gloves, face protection.
If swallowed: Call a doctor, a POISON CENTER if you feel unwell
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Rinse mouth.
If eye irritation persists: Get medical advice/attention.
Dispose of contents/container to State or local regulations

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : May form combustible dust concentrations in air. (DURING FOGGING APPLICATION).

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS-US classification
Ammonium benzoate	(CAS-No.) 1863-63-4	50 - 80	Acute Tox. 4 (Oral), H302 Eye Irrit. 2, H319
Inorganic carbon salt*	(CAS-No.) Trade Secret	20 - 50	Eye Irrit. 2, H319

***Chemical name, CAS number and/or exact concentration have been withheld as a trade secret**

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation : Assure fresh air breathing. Allow the victim to rest.

First-aid measures after skin contact : Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.

First-aid measures after eye contact : Rinse immediately with plenty of water. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a poison center or a doctor if you feel unwell. Call a POISON CENTER/doctor if you feel unwell.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray.

5.2. Specific hazards arising from the chemical

Fire hazard : Avoid dust formation.

Explosion hazard : May form combustible dust concentrations in air.

Reactivity : The product is non-reactive under normal conditions of use, storage and transport.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Refer to protective measures listed in Sections 7 and 8.

Emergency procedures : Evacuate unnecessary personnel. Avoid contact with skin and eyes.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection.

Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Avoid dispersal of dust in the air (ie, clearing dust surfaces with compressed air). Clean contaminated surfaces with an excess of water. Dispose of in accordance with relevant local regulations.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Dust may form flammable and explosive mixture with air.

Precautions for safe handling : Wear personal protective equipment. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product. Provide adequate ventilation to minimize dust and/or vapour concentrations. Avoid dust formation.

Hygiene measures : Do not eat, drink or smoke when using this product. Wash hands, forearms and face thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep only in original container. Store in a dry place. Store at room temperature. Store in a well-ventilated place. Keep container tightly closed.

Incompatible products : Strong oxidizing agents. Strong acids.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ammonia (7664-41-7)		
ACGIH	ACGIH TWA (ppm)	25 ppm
ACGIH	ACGIH STEL (ppm)	35 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	35 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	50 ppm
IDLH	US IDLH (ppm)	300 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	18 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	25 ppm
NIOSH	NIOSH REL (STEL) (mg/m³)	27 mg/m³
NIOSH	NIOSH REL (STEL) (ppm)	35 ppm

Additional information : Ammonia evolved during use.
Contains no substances with occupational exposure limits

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide adequate ventilation to minimize dust and/or vapour concentrations. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Avoid all unnecessary exposure. Gloves. Safety glasses.

Hand protection:

Wear protective gloves.

Eye protection:

Chemical goggles or safety glasses

Respiratory protection:

Ensure adequate ventilation, especially in confined areas. In case of insufficient ventilation, wear suitable respiratory equipment. Full face respirator with ammonia cartridges. Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Personal protective equipment symbol(s):

Other information:

Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Powder.
Colour	:	white
Odour	:	characteristic
Odour threshold	:	No data available
pH	:	Not applicable
pH solution	:	9 - 9.5
Melting point	:	No data available
Freezing point	:	0 °C Aqueous solution
Boiling point	:	No data available
Flash point	:	> 100 °C
Relative evaporation rate (butylacetate=1)	:	Not applicable
Flammability (solid, gas)	:	Not flammable Not flammable.
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	Not applicable
Relative density	:	No data available
Solubility	:	Water: 250 g/l
Log Pow	:	-1.33 (estimated value)
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive limits	:	No data available
Explosive properties	:	May form combustible dust concentrations in air.
Oxidising properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

The product is stable at normal handling and storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid dust formation. Moisture.

10.5. Incompatible materials

Strong oxidizing agents. Strong acids.

10.6. Hazardous decomposition products

ammonia. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	Not classified

Zerion® FVS Series	
ATE US (oral)	1031.25 mg/kg bodyweight

Ammonium benzoate (1863-63-4)	
LD50 oral rat	825 mg/kg
ATE US (oral)	825 mg/kg bodyweight

Inorganic carbon salt	
LD50 oral rat	> 2000 mg/kg

Skin corrosion/irritation : Not classified
pH: Not applicable

Serious eye damage/irritation : Causes serious eye irritation.
pH: Not applicable

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met. Harmful if swallowed.

Symptoms/effects after eye contact : Causes serious eye irritation.

Symptoms/effects after ingestion : Swallowing a small quantity of this material will result in serious health hazard.

SECTION 12: Ecological information

12.1. Toxicity

Zerion® FVS Series	
LC50 fish 1	339 mg/l Menidia beryllina (EPA-821-R-02-012: METHOD 2006)
LC50 other aquatic organisms 1	334 mg/l Mysidopsis bahia (EPA-821-R-02-012: METHOD 2007)
LOEC (acute)	450 mg/l EPA-821-R-02-12: METHOD 2006
NOEC (acute)	315 mg/l EPA-821-R-02-012: METHOD 2007

12.2. Persistence and degradability

Zerion® FVS Series	
Persistence and degradability	Preparation based on substances which are readily biodegradable.

12.3. Bioaccumulative potential

Zerion® FVS Series	
Log Kow	-1.33 (estimated value)
Bioaccumulative potential	Bioaccumulation unlikely.

Inorganic carbon salt	
BCF fish 1	(no bioaccumulation)

12.4. Mobility in soil

Zerion® FVS Series	
Ecology - soil	Expected to be highly mobile in soil.

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Disposal methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Product in unopened original container prior to use does not meet criteria for hazardous waste according to 40 CFR 261 (no components listed on F, K, P or U lists; not ignitable, not corrosive, not reactive and not toxic).

Ecology - waste materials : Avoid release to the environment.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT (49 CFR 100-185): Not regulated

Transport by sea

In accordance with IMDG: Not regulated

Air transport

In accordance with IATA: Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

Zerion® FVS Series	
SARA Section 311/312 Hazard Classes	Health hazard - Serious eye damage or eye irritation Health hazard - Acute toxicity (any route of exposure)

Ammonium benzoate (1863-63-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
CERCLA RQ	5000 lb

Inorganic carbon salt
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations

CANADA

Ammonium benzoate (1863-63-4)
Listed on the Canadian DSL (Domestic Substances List)

Inorganic carbon salt
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Ammonium benzoate (1863-63-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Inorganic carbon salt
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

Zerion® FVS Series
All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Ammonium benzoate (1863-63-4)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

Inorganic carbon salt
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Ammonium benzoate (1863-63-4)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Revision date : 1/29/2019

Other information : None.

Full text of H-statements:

H302	Harmful if swallowed.
H319	Causes serious eye irritation.

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable