

Safety Data Sheet



Section 1: Identification

Product identifier

Product Name

- **Residuum, Vacuum**

Synonyms

- Residuum Vacuum; Sweet Residuum; Vac Bottoms; Vacuum Residuum; Vacuum Tower Bottoms; VTBs

SDS Number/Grade

- 0080NOR002

Relevant identified uses of the substance or mixture and uses advised against**Recommended use**

- Petroleum refining intermediate stream

Details of the supplier of the safety data sheet**Manufacturer**

- Northern Tier Energy
301 St. Paul Park Road
St. Paul Park, MN 55071
United States
www.ntenergy.com
NTE.MSDS@ntenergy.com

Telephone (General) • 651-459-9771

Emergency telephone number**Manufacturer**

- 877-627-5463 - (877 MAP LINE)

Section 2: Hazard Identification

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture**OSHA HCS 2012**

- Eye Irritation 2
Specific Target Organ Toxicity Repeated Exposure 1

Label elements**OSHA HCS 2012****DANGER**

- Hazard statements** • Causes serious eye irritation
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

- Prevention** • Wash thoroughly after handling.
Do not breathe the mist, vapours and/or spray.

Do not eat, drink or smoke when using this product.
Wear protective gloves/protective clothing/eye protection/face protection.

- Response** • IF IN EYES: 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.
Get medical advice/attention if you feel unwell.

- Storage/Disposal** • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Other hazards

OSHA HCS 2012

- Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

Classification of the substance or mixture

WHMIS

- Other Toxic Effects - D2A
Other Toxic Effects - D2B

Label elements

WHMIS



- Other Toxic Effects - D2A
Other Toxic Effects - D2B

Other hazards

WHMIS

- In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

Substances

- Material does not meet the criteria of a substance.

Mixtures

Composition				
Chemical Name	Identifiers	%	Classifications According to Regulation/Directive	Comments
Residues (petroleum), vacuum	CAS:64741-56-6	100%	OSHA HCS 2012: Eye Irrit. 2; STOT RE 1 (Kidney, Lungs, Liver);	NDA
Sulfur [0% TO 3%]	CAS:7704-34-9	0% TO 3%	OSHA HCS 2012: Flam. Sol. 1; STOT SE 3: Resp. Irrit.; STOT RE 1 (Kidney, Lungs, Liver)	NDA
Hydrogen sulfide [0% TO 0.01%]	CAS:7783-06-4	0% TO 0.01%	OSHA HCS 2012: Exposure limits	NDA

Section 4: First-Aid Measures

Description of first aid measures

- Inhalation**
- Move victim to fresh air. Administer oxygen if breathing is difficult. Give artificial respiration if victim is not breathing. Get medical attention if symptoms occur.
- Skin**
- Rinse skin immediately with plenty of water for 15-20 minutes. Removal of solidified molten material from skin requires medical assistance. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical advice/attention.
- Eye**
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.
- Ingestion**
- Do NOT induce vomiting. Obtain medical attention immediately if ingested.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

- Notes to Physician**
- All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Section 5: Fire-Fighting Measures

Extinguishing media

- Suitable Extinguishing Media**
- For small fires, Class B fire extinguishing media such as CO₂, dry chemical, foam (AFFF/ATC) or water spray.
For large fires, water spray, fog or foam (AFFF/ATC)
- Unsuitable Extinguishing Media**
- Avoid using straight water streams.

Special hazards arising from the substance or mixture

- Unusual Fire and Explosion Hazards**
- This product is not a combustible material per the OSHA Hazard Communication Standard, but will ignite and burn at temperatures exceeding the flash point.
- Hazardous Combustion Products**
- No data available.

Advice for firefighters

- Structural firefighters' protective clothing will only provide limited protection. Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

- Personal Precautions**
- Ventilate enclosed areas. Do not walk through spilled material. Wear appropriate personal protective equipment, avoid direct contact.
- Emergency Procedures**
- Keep unauthorized personnel away. Stay upwind.

Environmental precautions

- Runoff from fire control may cause pollution.

Methods and material for containment and cleaning up

- Containment/Clean-up Measures**
- Stop leak if you can do it without risk.
SMALL SPILLS: Take up with sand or other non-combustible absorbent material and place into containers for later disposal.
LARGE SPILLS: Dike far ahead of liquid spill for later disposal.

Section 7 - Handling and Storage

Precautions for safe handling

Handling

- Use only with adequate ventilation. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Do not cut, drill, grind or weld on empty containers since they may contain explosive residues. Wear appropriate personal protective equipment. Avoid contact with skin, eyes, and clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco. Harmful concentrations of hydrogen sulfide (H₂S) gas can accumulate in excavations and low-lying areas as well as the vapor space of storage and bulk transport compartments. Stay upwind and vent open hatches before unloading.

Conditions for safe storage, including any incompatibilities**Storage**

- Keep container tightly closed. Store in a cool, dry, well-ventilated place.

Section 8 - Exposure Controls/Personal Protection**Control parameters**

Exposure Limits/Guidelines				
	Result	ACGIH	NIOSH	OSHA
Hydrogen sulfide (7783-06-4)	Ceilings	Not established	10 ppm Ceiling (10 min); 15 mg/m ³ Ceiling (10 min)	20 ppm Ceiling
	STELs	5 ppm STEL	Not established	Not established
	TWAs	1 ppm TWA	Not established	Not established

Exposure controls**Engineering Measures/Controls**

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment**Respiratory**

- In case of insufficient ventilation, wear suitable respiratory equipment.

Eye/Face

- Goggles and faceshield when handling hot material.

Skin/Body

- Wear appropriate gloves.

Environmental Exposure Controls

- Follow best practice for site management and disposal of waste. Controls should be engineered to prevent release to the environment, including procedures to prevent spills, atmospheric release and release to waterways.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene

STEL = Short Term Exposure Limits are based on 15-minute exposures

NIOSH = National Institute of Occupational Safety and Health

TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

OSHA = Occupational Safety and Health Administration

Section 9 - Physical and Chemical Properties**Information on Physical and Chemical Properties**

Material Description			
Physical Form	Liquid	Appearance/Description	Light to dark brown vicious liquid with rotten egg odor.
Color	Light to dark brown.	Odor	Rotten egg.
Odor Threshold	No data available		
General Properties			
Boiling Point	932 F(500 C)	Melting Point/Freezing Point	No data available

Decomposition Temperature	No data available	pH	Neutral
Specific Gravity/Relative Density	0.98 to 1.1 Water=1	Water Solubility	No data available
Viscosity	No data available		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available		
Flammability			
Flash Point	> 200 F(> 93.3333 C)	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

Section 10: Stability and Reactivity

Reactivity

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable

Possibility of hazardous reactions

- Hazardous polymerization will not occur.

Conditions to avoid

- Excessive heat, sources of ignition and open flames.

Incompatible materials

- Strong oxidizers such as nitrates, chlorates, peroxides.

Hazardous decomposition products

- Combustion produces carbon monoxide, aldehydes, aromatic and other hydrocarbons.

Section 11 - Toxicological Information

Information on toxicological effects

Components		
Sulfur (0% TO 3%)	7704-34-9	Acute Toxicity: Inhalation-Mammal LC50 • 1660 mg/m ³ ; Irritation: Eye-Human • 8 ppm; Multi-dose Toxicity: Inhalation-Rat TCLo • 1.76 mg/m ³ 4 Hour(s) 30 Day(s)-Intermittent; <i>Liver:</i> Hepatitis (hepatocellular necrosis), diffuse; Kidney, Ureter, and Bladder:Changes in tubules (including acute renal failure, acute tubular necrosis)

GHS Properties	Classification
Respiratory sensitization	OSHA HCS 2012 • No data available
Serious eye damage/Irritation	OSHA HCS 2012 • Eye Irritation 2
Acute toxicity	OSHA HCS 2012 • No data available
Aspiration Hazard	OSHA HCS 2012 • No data available
Carcinogenicity	OSHA HCS 2012 • No data available

Skin corrosion/Irritation	OSHA HCS 2012 • No data available
Skin sensitization	OSHA HCS 2012 • No data available
STOT-RE	OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1
STOT-SE	OSHA HCS 2012 • No data available
Toxicity for Reproduction	OSHA HCS 2012 • No data available
Germ Cell Mutagenicity	OSHA HCS 2012 • No data available

Potential Health Effects

Inhalation

- Acute (Immediate)**
 - Exposure to high vapor concentrations may produce headache, giddiness, vertigo, and anesthetic stupor.
- Chronic (Delayed)**
 - No data available.

Skin

- Acute (Immediate)**
 - Skin contact with hot product can cause skin burns. Frequent or repeated contact with cold material may cause dermatitis, folliculitis or oil acne.
- Chronic (Delayed)**
 - No data available.

Eye

- Acute (Immediate)**
 - Causes serious eye irritation.
- Chronic (Delayed)**
 - No data available.

Ingestion

- Acute (Immediate)**
 - Product would be expected to have a low order of acute toxicity.
- Chronic (Delayed)**
 - No data available.

Other

- Chronic (Delayed)**
 - Repeated and prolonged exposure may cause damage to the lungs, liver, kidney.

Carcinogenic Effects

- This material does contain a component that may cause cancer, however this material as a whole is not classified as a carcinogen.

Carcinogenic Effects		
	CAS	IARC
Residues (petroleum), vacuum	64741-56-6	Group 2B-Possible Carcinogen

Key to abbreviations

LC = Lethal Concentration

TC = Toxic Concentration

Section 12 - Ecological Information

Toxicity

- Non-mandatory section - information about this substance not compiled for this reason.

Persistence and degradability

- Non-mandatory section - information about this substance not compiled for this reason.

Bioaccumulative potential

- Non-mandatory section - information about this substance not compiled for this reason.

Mobility in Soil

- Non-mandatory section - information about this substance not compiled for this reason.

Other adverse effects

- Non-mandatory section - information about this substance not compiled for this reason.

Section 13 - Disposal Considerations**Waste treatment methods****Product waste**

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste

- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Section 14 - Transport Information

	UN number	UN proper shipping name	Transport hazard class(es)	Packing group	Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA

Special precautions for user • None specified.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code • No data available

Section 15 - Regulatory Information**Safety, health and environmental regulations/legislation specific for the substance or mixture**

SARA Hazard Classifications • Acute, Chronic

Inventory				
Component	CAS	Canada DSL	Canada NDSL	TSCA
Hydrogen sulfide	7783-06-4	Yes	No	Yes
Residues (petroleum), vacuum	64741-56-6	Yes	No	Yes
Sulfur	7704-34-9	Yes	No	Yes

Canada**Labor****Canada - WHMIS - Classifications of Substances**

- | | | |
|--------------------------------|------------|-----------------|
| • Residues (petroleum), vacuum | 64741-56-6 | Not Listed |
| • Hydrogen sulfide | 7783-06-4 | A, B1, D1A, D2B |
| • Sulfur | 7704-34-9 | B4 |

Canada - WHMIS - Ingredient Disclosure List

- | | | |
|--------------------------------|------------|------------|
| • Residues (petroleum), vacuum | 64741-56-6 | Not Listed |
| • Hydrogen sulfide | 7783-06-4 | 1 % |

• Sulfur	7704-34-9	Not Listed
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Environment**Canada - CEPA - Priority Substances List**

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

United States**Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	1500 lb TQ
• Sulfur	7704-34-9	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

Environment**U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants**

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	100 lb final RQ; 45.4 kg final RQ
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Radionuclides and Their Reportable Quantities

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	100 lb EPCRA RQ
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	500 lb TPQ
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	1.0 % de minimis concentration
• Sulfur	7704-34-9	Not Listed

U.S. - CERCLA/SARA - Section 313 - PBT Chemical Listing

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - California - Proposition 65 - Developmental Toxicity

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL)

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Female

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

U.S. - California - Proposition 65 - Reproductive Toxicity - Male

• Residues (petroleum), vacuum	64741-56-6	Not Listed
• Hydrogen sulfide	7783-06-4	Not Listed
• Sulfur	7704-34-9	Not Listed

Section 16 - Other Information

Revision Date

- 22/October/2015

Preparation Date

- 30/November/2010

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Key to abbreviations

NDA = No data available

