



TRANSNET



WASTE CLASSIFICATION

SEPERATOR SLUDGE - LADYSMITH WORKSHOP



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ABSTRACT

As per South African National Standard for Globally Harmonized System of Classification and Labelling of Chemicals (SANS 10234:2008); Separator Sludge - Ladysmith Workshop has been analytically classified and is deemed a type 3 waste. If the disposal is required at a landfill site, it can be directed to a Class A - Class C landfill site however waste must be solidified prior to disposal.

INTRODUCTION

Dolphin Coast Environmental and Laboratory Solutions (DCELS), has been appointed by Transnet pipelines to develop a Safety Data Sheet (Annexure 1) on a waste stream generated by themselves, namely: Separator Sludge. In addition, DCELS was requested to classify the waste in accordance with the guidance provided by the Waste Classification and Management Regulations Government Notice 634 of 2013. This is for the organization to understand the requirements for handling and disposal of the above-mentioned waste stream. The samples will be reviewed, classified and a safety data sheet (SDS) generated in accordance with SANS 10234.

BACKGROUND

Transnet pipelines has provided DCELS with the relevant Material Safety Data Sheets and process description. (Annexure 3)

BASIC ASSESSMENT METHODOLOGY

The above-mentioned waste stream has been analyzed as per the norms and standards (Annexure 2) which has been evaluated and compared in the following manner; -

Two parts are reviewed when determining the type of waste:

1. The TC is compared to three threshold values stipulated by the regulations that are; TCT0, TCT1, and TCT2. The threshold values were obtained from various sources such as the land remediation values, Environmental protection agency, and SA soil screening values.
2. The LC is compared to four threshold values stipulated by the regulations that are; LCT0, LCT1, LCT2, and LCT3. The threshold values were obtained from various sources such as the standard for human effects listed for drinking water and World health organization guidelines.

In order to determine the type of waste and class of landfill that the waste can be disposed of at, the TC and LC must be assessed as per table 1 below against the given threshold limits in the method listed below.



Table 1: Criteria used in order to determine the type of waste.

TYPE	THRESHOLD LIMITS
0	$LC > LCT3$ or $TC > TCT2$
1	$LCT1 < LC \leq LCT2$ or $TCT1 < TC \leq TCT2$
2	$LCT1 < LC \leq LCT2$ and $TC \leq TCT1$
3	$LCT0 < LC \leq LCT1$ and $TC \leq TCT1$
4	$LC \leq LCT0$ and $TC \leq TCT0$

CONCLUSION

The waste stream has been deemed a type 3 waste stream if disposal is required it can be directed to a Class A - Class C landfill site.

Waste sample received was a liquid and as of August 2019; such waste is not accepted at a landfill site and an alternate facility must be sourced.

RECOMMENDATIONS

Note: According to Government notice 634, these classification results are valid for 5 years, if the process from which the product is derived from changes, the waste stream thereof has to be re-classified within 30 days from the change of process.

Date report generated: *October 2019*

Expiration Date of report: *October 2024*



ANNEXURE ONE

A Safety Data Sheet is required for the above-mentioned product stream based as prescribed in the SANS 10234:2008.

Safety Data Sheet

Waste stream: Separator Sludge
Report Ref:

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SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Waste Stream Separator Sludge		
Waste generation Process The separator sludge contains a mixture of dirt/grit, metal workshop fines, hydrocarbon waste and water.		
Restrictions on use Not to be re-used.		
Generators Name Transnet Pipelines -Ladysmith Workshop		
Street address Fairclough Road Ladysmith		
City Ladysmith	Province Kwazulu Natal	
Postal Code 3370	Emergency Telephone 034 989 9515 & 083 300 9488	
Fax	Email slindile.mpungose@transnet.net	
Date SDS prepared October 2019	SDS prepared by Dolphin Coast Environmental Laboratory Solutions	Phone number/ Email Address 087 353 9750 / info@dcels.co.za

SECTION 2 HAZARDS IDENTIFICATION

Human Health	Acute toxicity – Oral (Category 5) – H303 Aspiration hazard (Category 2) – H304 Skin Irritant (Category 2) - H315 Eye irritation (Category 2B) – H320 Acute toxicity – Inhalation (Category 4) – H332 Carcinogen (Category 1B) - H350 Specific target organ toxicity - repeated exposure (Category 2) – H373
Environment	Aquatic Chronic (Category 3) – H412
Physical	Flammable liquid (Category 4) - See section16
Signal words	WARNING


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<p>Hazard Statements</p>	<p>PHYSICAL None identified</p>	<p>HEALTH H303 – May be harmful if swallowed H304 – May be fatal if swallowed and enters airways H315 - Causes skin irritation H320 – Fatal if inhaled H350 – May Cause cancer H373 – Causes damage to organs through prolonged or repeated exposure</p>	<p>ENVIRONMENTAL H412 – Harmful to aquatic life with long lasting effects.</p>
<p>Precautionary statements</p>	<p>PREVENTION P202: Do not handle until all safety precautions have been read and understood. P264: Wash hands, face and other affected areas thoroughly after handling P272: Contaminated work clothing should not be allowed out of the workplace. P273: Avoid release to the environment.</p>	<p>RESPONSE 332 + P313: If skin irritation occurs: Get medical advice/attention. P333 + P313: If skin irritation or rash occurs: Get medical advice/attention. P335 + P334: Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. P337 + P313: If eye irritation persists: Get medical advice/attention. P342 + P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.</p>	<p>STORAGE/DISPOSAL P405: Store locked up. P501: Dispose of contents/container to an approved facility</p>
<p>Pictograms:</p> 			

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SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

Substance		Mixture	X
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The contaminants are listed below:

Hazardous ingredients	% (concentration range)	CAS Number
Engen Dieselube 700 Super	Residual	-
Engen Gearlube TDL 75W-90	Residual	-
Engen Grease GP	Residual	-
Engen Super Brake Fluid Dot 4+	Residual	-
Engen Super WB Grease	Residual	-
Lubricating oils, used oil	Residual	74869-22-0
Petroleum distillates, hydro-treated heavy paraffinic	Residual	64742-54-7

Note: All concentrations are based on worst case scenario.

SECTION 4 FIRST AID MEASURES

<p>Skin contact: Wash residue from skin with soap and water.</p>
<p>Eye contact Immediately flush eyes with plenty of water, lifting upper and lower eyelids occasionally. Get medical attention if irritation occurs and persists. Eye wash stations in the working area are recommended.</p>
<p>Inhalation In the event of excessive inhalation of dust; remove person to fresh air. Seek medical attention if necessary.</p>
<p>Ingestion Rinse mouth thoroughly. Do not induce vomiting. Seek medical attention if irritation or symptoms persist.</p>
<p>Most important symptoms and effects (acute and delayed): Symptoms: Lubricating Oils: Irritation of the respiratory tract due to excess fumes mists or vapour exposure.</p> <p>Effects: None Identified</p>

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Protection of First Aiders and notes for doctor:

Show this safety data sheet to the doctor in attendance,

SECTION 5 FIRE FIGHTING MEASURES

<p>Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide</p>	<p>Unsuitable extinguishing media Do not use water and foam simultaneously. Do not use water jet</p>
<p>Hazardous combustion products: Combustion materials may be toxic. Burning may produce carbon monoxide, carbon dioxide and other unidentified organic compounds.</p>	
<p>Precautions for Fire-fighters Complete personal protective equipment (PPE) to be worn.</p>	

SECTION 6 ACCIDENTAL RELEASE MEASURES

<p>Personal precaution Wash hands, forearms and face thoroughly after handling waste stream; before eating, smoking, using the lavatory and at the end of the work day. Remove potentially contaminated clothing and wash prior to re-use. Avoid breathing excess amounts of dust. Access to area must be restricted to authorised personnel only.</p>
<p>Protective Equipment See section 8</p>
<p>Emergency Procedures Evacuate non-essential staff. Health and Safety personnel on-site must be contacted in order to ensure all precautionary measures are taken and correct procedures are followed.</p>
<p>Environmental Precautions Collect recovered Waste and other materials in suitable tanks or containers for safe disposal. Material must not be allowed to enter water ways and streams.</p>
<p>Materials for containment Small Spills - Spill kits should be available in appropriate locations i.e. waste storage area, loading area and en-route to the disposal facility. Large Spills - Appropriate hazmat team must be appointed by responsible personnel to ensure spill is appropriately cleared. Disposal vehicles must have adequate labelling.</p> <p>Collect using suitable method and dispose of according to applicable regulations and permit requirements. Avoid creating dusty conditions and prevent wind dispersal.</p>
<p>Methods and materials for clean-up, neutralization and recovery Contain, collect and dispose of spilled waste as per local regulations and permit requirements.</p>

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SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products. Keep away from sparks/open flames/hot surfaces. – No smoking.
Avoid inhalation of excessive amounts of dust particles. Remove contaminated clothing and protective equipment before entering eating areas or leaving work.

Conditions for safe storage

Prior to disposal product must be stored in a dry, cool and well-ventilated area. Area must be bunded to ensure waste/product doesn't leach into the surrounding areas.

SECTION 8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentrations Date: No data available Source: No data available Recommended test method: No data available	OEL Oil: ACGIH - TWA: 5mg/m ³ OSHA - TWA: 5mg/m ³ STEL: 10mg/m ³	Biological limits See comment below
Engineering controls Ensure sufficient ventilation. Reduce inhalation hazards contaminants by minimising the occupational exposure. Local Regulations must be adhered for emissions of volatile substances.		
PPE: Respiratory Protection: Use approved respirator if ventilation is not sufficient and if mists are generated. Hand Protection: chemically resistance gloves should be used Eye Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Skin and Body Protection: Chemical resistant clothing		
Comments: No conclusive exposure limits have been determined.		

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance Black liquid	Odour Strong Odour	pH (concentration) 7.00 pH units
Melting point No Data Available	Freezing point No Data Available	Boiling point, initial boiling point, boiling range No Data Available
Flashpoint No flash <61°C	Upper/lower flammability/explosive limits No Data Available	Vapour pressure No Data Available

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Vapour density No Data Available	Density/relative density No Data Available	Solubility Not soluble
n-octanol/water partition coefficient No Data Available	Auto-ignition temperature No Data Available	Decomposition temperature No Data Available
Odour threshold No Data Available	Evaporation rate No Data Available	Flammability Not flammable
Viscosity No Data Available	Radioactivity No Data Available	

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If no, under which conditions Avoid moisture. Heat, flames and sparks.
Incompatibility with other substances Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	If yes, which ones? Strong oxidizing agents. Amines, Bases
Anticipated hazardous decomposition products None identified	

SECTION 11 TOXICOLOGICAL INFORMATION

Component 1 – Engen Dieselube 700 Super	
Acute toxicity Acute inhalation toxicity (Category 4) (LD50: greater than 2000 mg/kg). Acute oral toxicity (Category 5) (LD50: Greater than 2000 mg/kg).	Skin irritation/corrosion Skin irritation (Category 3) H316: Causes mild skin irritation
Eye damage/irritation Eye irritation (Category 2B) H320: Causes eye irritation	Respiratory or skin sensitisation No Data Available
Germ cell mutagenicity include in vitro mutagenicity No Data Available	Carcinogenicity No Data Available
Reproductive toxicity No Data Available	Specific target organ toxicity – single exposure No Data Available

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Specific target organ toxicity – repeated exposure No Data Available	Aspiration hazard No Data Available
Component 2 - Engen Grease GP	
Acute toxicity No data available	Skin irritation/corrosion Skin irritation (Category 3) H316: Causes mild skin irritation
Eye damage/irritation Eye irritation (Category 2B) H320: Causes eye irritation	Respiratory or skin sensitisation No data available
Germ cell mutagenicity No data available	Carcinogenicity No data available
Reproductive toxicity No data available	Specific target organ toxicity – single exposure No data available
Specific target organ toxicity – repeated exposure No data available	Aspiration hazard Aspiration hazard (Category 1) H304 – May be fatal if swallowed and enters airways.
Component 3 - Engen Super Brake Fluid Dot 4+	
Acute toxicity Acute inhalation toxicity (Category 4) (LC50: greater than 10 but less than 20mg/l) Acute oral toxicity (Category 5) (LD50: Greater than 2000 mg/kg)	Skin irritation/corrosion Skin irritation (Category 3) H316: Causes mild skin irritation
Eye damage/irritation Eye irritation (Category 2B) H320: Causes eye irritation	Respiratory or skin sensitisation No data available
Germ cell mutagenicity include in vitro mutagenicity No data available	Carcinogenicity No data available
Reproductive toxicity No data available	Specific target organ toxicity – single exposure No data available
Specific target organ toxicity – repeated exposure No data available	Aspiration hazard Aspiration hazard (Category 2) H304 – May be fatal if swallowed and enters airways.
Component 4 - Engen Super WB Grease	
Acute toxicity No data available	Skin irritation/corrosion Skin irritation (Category 3) H316: Causes mild skin irritation

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Eye damage/irritation Eye irritation (Category 2B) H320 : Causes eye irritation	Respiratory or skin sensitisation No data available
Germ cell mutagenicity include in vitro mutagenicity No data available	Carcinogenicity No data available
Reproductive toxicity No data available	Specific target organ toxicity – single exposure No data available
Specific target organ toxicity – repeated exposure Specific target organ toxicity (repeated exposure) (Category 2) H373 – Causes damage to organs through prolonged or repeated exposure.	Aspiration hazard No data available
Component 5 - Lubricating Oils	
Acute toxicity No Data Available	Skin irritation/corrosion No Data Available
Eye damage/irritation No Data Available	Respiratory or skin sensitization No Data Available
Germ cell mutagenicity No Data Available	Carcinogenicity Carcinogen (Category 1B) H350: May cause cancer
Reproductive toxicity No Data Available	Specific target organ toxicity – single exposure No Data Available
Specific target organ toxicity – repeated exposure No Data Available	Aspiration hazard No Data Available
Component 6 - Petroleum distillates, hydro-treated heavy paraffinic	
Acute toxicity No Data Available	Skin irritation/corrosion No Data Available
Eye damage/irritation No Data Available	Respiratory or skin sensitization No Data Available
Germ cell mutagenicity No Data Available	Carcinogenicity Carcinogen (Category 1B) H350 : May cause cancer
Reproductive toxicity No Data Available	Specific target organ toxicity – single exposure No Data Available

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Specific target organ toxicity – repeated exposure No Data Available	Aspiration hazard No Data Available
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SECTION 12 ECOLOGICAL INFORMATION

Aquatic toxicity Aquatic Chronic (Category 3) - H412 - Harmful to aquatic life with long lasting effects.	Possible environmental impact Low leach potential hence has a no significant effect on the environment.
Persistence and biodegradability This substance/mixture contains no components considered to be persistent	Bio-accumulative potential This substance/mixture contains no components considered to be, bio accumulative and toxic (PBT).
Mobility in soil No Data Available	Ecological Limit Values No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods None Identified
Waste Disposal options Waste shall be disposed of according to all applicable regulations. As per the new waste regulations records of all waste been disposed must be retained and a safe disposal certificate, where applicable, must also be received from the waste disposal facility
Any other information Waste has been classified as a type 3 waste and can be disposed of at a Class A - Class C landfill designed in accordance with section 3(1) and 3(2) of the standards (GNR 634).

SECTION 14 TRANSPORT INFORMATION

UN number 3082	UN proper shipping name Environmental Hazardous Substance; Liquid; N.O.S	UN classification 9
Packaging group II	Marine Pollutant No	Transport in bulk according to MARPOL No
Special Precautions Drivers and conductors must be trained in order to ensure correct protocol is followed.		

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SECTION 15 REGULATORY INFORMATION

Labelling Requirements



SECTION 16 OTHER INFORMATION

A large quantity of data has been reviewed from various sources based on the substances that could have potentially contaminated the above mentioned waste stream.

The waste mentioned above may be flammable as a standalone chemical however the above mentioned waste contains minute amounts. All precaution must be exercised to ensure the no smoking is practised near this bin.

The information gathered and contents of this Safety Data Sheet are based on the current knowledge of the contaminants and an overall description of what could possibly be harmful to humans/aquatic environment. The waste stream must not be used for any other purpose unless handling instructions are obtained from the supplier.

ABBREVIATIONS:

- STEL - Short-term exposure limits
- TWA - Time-weighted average

Risk Phrases that might apply to the above product:

R38 Irritating to skin

REFERENCES:

1. The European Chemicals Agency. [ONLINE] Available at: <http://echa.europa.eu/>.
2. Sigma-Aldrich. 2014. sigma-Aldrich. [ONLINE] Available at: <https://www.sigmaaldrich.com/south-africa.html>.
3. Various Material safety data sheets reviewed.
4. SANS 10243 (2008) Globally Harmonized System of classification and labelling of chemicals

NOTICE: DCELS has completed this SDS through information conducted in good faith and believed to be correct and according to SANS 10234 at the date hereof. DCELS makes no depiction as to the completeness or accuracy thereof. Information is supplied and it is the responsibility of the persons receiving the substance to make their own determination as to the safety and suitability of their purposes prior to use. DCELS accepts no responsibility for damages of any nature whatsoever resulting from the use or reliance on the above information.



ANNEXURE 2

BASIC ASSESSMENT TO LANDFILL AS PER NATIONAL NORMS AND STANDARDS

Total Concentration Threshold (TCT) Limits (mg/kg)

Elements and Chemical Substances in Waste	TCT0	TCT1	TCT2	TC	KEY
METAL IONS					Type 0
As, Arsenic	5.8	500	2000	0.0025	Type 1
B, Boron	150	15000	60000	0.037	Type 2
Ba, Barium	62.5	6250	25000	0.094	Type 3
Cd, Cadmium	7.5	260	1040	0.0005	Type 4
Co, Cobalt	50	5000	20000	0.007	
Cr _{Total} , Chromium Total	46000	800000	N/A	0.0015	
Cr(VI), Chromium (VI)	6.5	500	2000	0.006	
Cu, Copper	16	19500	78000	0.007	
Hg, Mercury	0.93	160	640	0.001	
Mn, Manganese	1000	25000	100000	2.151	
Mo, Molybdenum	40	1000	4000	0.023	
Ni, Nickel	9	10600	42400	0.051	
Pb, Lead	20	1900	7600	0.005	
Sb, Antimony	10	75	300	0.002	
Se, Selenium	10	50	200	0.003	
V, Vanadium	150	2680	10720	0.0025	
Zn, Zinc	240	160000	640000	0.005	
INORGANIC ANIONS					
TDS					
Chloride					
Sulphate					
NO ₃ as N, Nitrate-N					
F, Fluoride	100	10000	40000	0	
CN (Total), Cyanide Total	14	10500	42000	0.01	
ORGANICS					
Benzene		10	40	0.0005	
Benzo(a)pyrene		1.7	40	0.001	
Carbon tetrachloride		4	16	0.002	
Chlorobenzene		8800	35200	0.002	
Chloroform		700	2800	0.002	
2-Chlorophenol		2100	8400	0.001	
Di (2 ethylhexyl) phthalate		40	160	0.322	
1,2-Dichlorobezene		31900	127600	0.003	
1,4-Dichlorobenzene		18400	73600	0.003	
1,2-Dichloroethane		3.7	14.8	0.002	
1,1-Dichloroethylene		150	600	0.003	
1-2-Dichloroethylene		3750	15000	12.973	
Dichloromethane		16	64	0.005	
2,4-Dichlorophenol		800	3200	0.0005	
2,4-Dinitrotoluene		5.2	20.8	0.0005	
Ethylbenzene		540	2160	0.001	
Formaldehyde		2000	8000		
Hexachlorobutadiene		2.8	5.4	0.001	
Methyl ethyl ketone		8000	32000	0.1	
MTBE (Methyl t-butyl ether)		1435	5740	0.0007	
Nitrobenzene		45	180	0.001	
Petroleum H/Cs, C6 to C9		650	2600	3.07	
Petroleum H/Cs, C10 to C36		10000	40000	13.76	
Phenols (total, non-halogenated)		560	2240	0.15	
Polychlorinated biphenyls		12	48	0.002	
Styrene		120	480	0.002	
1,1,1,2-Tetrachloroethane		400	1600	0.002	
1,1,2,2-Tetrachloroethane		5	20	0.004	
Tetrachloroethylene		200	800	0.003	
Toluene		1150	4600	0.005	
Trichlorobenzenes (total)		3300	13200	0.006	
1,1,1-Trichloroethane		1200	4800	0.002	
1,1,2-Trichloroethane		48	192	0.002	
Trichloroethylene		11600	46400	0.003	
2,4,6-Trichlorophenol		1770	7080	0.001	
Vinyl Chloride		1.5	6	0.0009	
Xylenes (total)		890	3560	0.012	
PESTICIDES					
Aldrin + Dieldrin	0.05	1.2	4.8	0.0004	
DDT + DDD + DDE	0.05	50	200	0.0012	
2,4-D	0.05	120	480	0.0002	
Chlordane	0.05	4	16	0.0004	
Heptachlor	0.05	1.2	4.8	0.0002	