SAFE WORK PRACTICE – TRANSPORTATION OF DANGEROUS GOODS

PURPOSE

To promote the safe handling and transport of any dangerous goods during Newtz' operations in adherence to the TDG Act and Regulations using:

- Training
- Classification
- Documentation
- Safety Marks
- Means of containment (packaging)
- Emergency response assistance plans (ERAP if required)
- Reporting incidents

PREREQUISITES

- Only authorized personnel who are adequately trained will be permitted to transport dangerous goods.

CLASSES AND MARKS

CLASS	DIVISION	CHARACTERISTICS	SAFETY MARKS
CLASS 1 Explosives (Section 2.9 - 2.12)	1.1	A substance or article with a mass explosion hazard	
	1.2	A substance or article with a projection hazard but not a mass explosion hazard	
	1.3	A substance or article which has a fire hazard and either a minor blast hazard or a minor projection hazard, but does not have a mass explosion hazard	
	1.4	A substance or article which presents no significant hazard - explosion effects are localized to immediate surroundings	
	1.5	A very insensitive substance with a mass explosion hazard	
	1.6	Extremely insensitive substances with no mass explosion hazard	
CLASS 2 Gases (Section 2.15 – 2.17)	2.1	A flammable gas which is easily ignited and burns	
	2.2	A non-flammable, non-toxic, non-corrosive gas	
	2.3	A gas which is poisonous or corrosive to humans	

CLASS	DIVISION	CHARACTERISTICS	SAFETY MARKS
CLASS 3 Flammable Liquids (Section 2.18 – 2.19)	None	A flammable liquid with a closed-cup flash point less than 60 C. Shipments intended or expected to be at a temperature greater than their flashpoint are also considered to be flammable.	
CLASS 4 Flammable Solids (Section 2.20 – 2.22)	4.1	A flammable solid which is readily combustible and cause fire through friction or from heat retained from manufacturing	  
	4.2	A spontaneously combustible substance that ignites when exposed to air	
	4.3	4.3 A water-reactive substance which emits flammable gas when it comes into contact with water	
CLASS 5 Oxidizing Substances, Organic Peroxides (Section 2.23 – 2.25)	5.1	An oxidizing substance which may yield oxygen and contribute to the combustion of other material	 
	5.2	An organic peroxide which releases oxygen readily and may be liable to explosive decomposition, or sensitive to heat, shock or friction	
CLASS 6 Toxic and Infectious Substances (Section 2.26 – 2.36)	6.1	A toxic substance that is liable to cause harm to human health	 
	6.2	An infectious substance	
CLASS 7 Radioactive Materials (Section 2.37 – 2.39)	None	Radioactive materials as defined by the Nuclear Safety and Control Act	 
CLASS 8 Corrosive Substances (Section 2.40 – 2.42)	None	Solids or liquids such as acids or alkalis materials that cause destruction of the skin or corrode metals	
CLASS 9 Miscellaneous Dangerous Goods (Section 2.43 – 2.45)	None	A regulated substance that cannot be assigned to any other class. It includes genetically modified microorganisms, marine pollutants, substances transported at elevated temperature, substances that release toxic substances through leaching, and environmentally hazardous substances intended for disposal.	

In addition to the class and division, some dangerous goods are also assigned packing groups that reflect the level of hazard that dangerous goods represent:

PACKING GROUP	LEVEL OF HAZARD
I	Very hazardous substances
II	Hazardous substances
III	Moderately hazardous substances

Labels identify the class of dangerous goods within the cylinder. A label is:

- a square on a point
- the length of each side is 100 mm
- the size of the label can be reduced to no less than 30 mm if the cylinder is too small to fit a standard label.
- label with sides reduced to 30 mm may be displayed on a tag securely attached to the cylinder.

Placards identify the class of the dangerous good being transported on the roadway and are displayed on all four sides of the vehicle, when required. A placard is:

- a square on point
- the length of each side is 250mm
- has a line running 12.5 mm inside the edge
- the size of the placard can be reduced to no less than 100mm if a standard size placard cannot be displayed due to the shape or size of the vehicle
- Class 2 placards are required to be displayed on the vehicle when the gross mass of all cylinders onboard exceed 500 kg.

Oxidizing Gases: Cylinders containing any of the following four oxidizing gases are required to display the "oxidizing label" and cannot display a Class 2.2 label.

- UN1072, OXYGEN, COMPRESSED, Class 2.2 (5.1)
- UN1073, OXYGEN, REFRIGERATED LIQUID;, Class 2.2 (5.1)
- UN3156, COMPRESSED GAS, OXIDIZING, N.O.S.;, Class 2.2 (5.1) and
- UN3157, LIQUEFIED GAS, OXIDIZING, N.O.S., Class 2.2 (5.1)

IDENTIFICATION

Use schedules 1 – 3 of the TDG regulation to identify the appropriate classification for a dangerous good and the associated requirements:

- Schedule 3: Alphabetical listing to source the class and UN number.
- Schedule 1: UN numbered reference chart with shipping names, classes, packing groups, special provisions, and quantity limits associated with the goods.
- Schedule 2: Special provisions

Schedule 1 Excerpt – dangerous goods potentially pertinent to Newtz' operations									
UN Number	**Shipping Name and Description**	**Class**	**Packing Group/ Category**	**Special Provisions**	**Explosive Limit and Limited Quantity Index**	**Excepted Quantities**	**ERAP Index**	**Passenger Carrying Vessel Index**	**Passenger Carrying Road Vehicle** or Passenger Carrying Railway Vehicle Index
UN1001	ACETYLENE, DISSOLVED	2.1		38	0	E0		75	Forbidden
UN1002	AIR, COMPRESSED, with not more than 23.5% oxygen, by volume	2.2			0.125 L	E1			75 L
UN1006	ARGON, COMPRESSED	2.2		148	0.125 L	E1			75 L
UN1072	OXYGEN, COMPRESSED	2.2 (5.1)			0.125 L	E0	3000		75 L
UN1203	GASOLINE; MOTOR SPIRIT; or PETROL (also AVGAS)	3	II	17, 88, 98, 150	30 L	E2		100 L	5 L
UN1978	PROPANE	2.1		88	0.125 L	E1		450	50 L
UN3316	CHEMICAL KIT; or FIRST AID KIT	9	II Or III	65, 141	See SP65	See SP141			10 kg

DOCUMENTATION

The following sample includes the information required to appear on a shipping document per TDG Regulation 3.5:

SAMPLE SHIPPING DOCUMENT – required fields only							
Consignor Name:					Date:		
Address:							
REGULATED DANGEROUS GOODS							
24-Hour Number:				ERAP info only if applicable	ERAP reference #:		
					ERAP telephone number:		
UN number	**Shipping name** (If applicable, Technical Name)	**Primary Class**	**Subsidiary Class**	**Packing Group**	**Toxic by inhalation**	**Total Quantity** (kg, L, NEQ in kg, or articles)	**Number** of packages requiring labels
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, are properly classified and packaged, have dangerous goods safety marks properly affixed or displayed on them, and are in all respects in proper condition for transport according to the Transportation of Dangerous Goods Regulations.							
Shipper's Name:							

CONTAINMENT

Means of containment (MOC) must meet requirements described in the TDG Regulations Part 5. Carrier and Consignee's responsibilities are not directly specified in Part 5 of the TDG Regulations. However, as a handler of dangerous goods, make sure the MOC meets the TDG regulatory requirements. Most MOC standards in Canada are based on the United Nations (UN) Recommendations and will display the "UN" mark. Compliance marks indicate:

- that the MOC meets a specific performance level
- the age of the MOC
- whether the MOC has been inspected for integrity

SMALL MOC (capacity is 450 L or less) – references for determining the UN package code

Type	Material	Category	Performance Level / Standard
1 – Drums **2 – Reserved** **3 – Jerricans** **4 – Boxes** **5 – Bags** **6 – Composite packaging**	A – Steel B – Aluminum C – Natural Wood D – Plywood F – Reconstituted Wood G – Fibre / fibreboard H – Plastic L – Textile M – Paper N – Metal other than Steel or Aluminum P – Glass Porcelain, Stoneware T – Salvage container V – Special container W – Container manufactured to a different specification that is considered to be equivalent to the standard	**A, B, or H Drums – Jerricans** 1 – Non-Removable Head 2 – Removable Head **A or B Boxes** 1 – Ordinary A or B 2 – A or B with liner or coatings **C Boxes** 1 – Ordinary 2 – With sift proof wall **H Boxes** 1 – Expanded Plastic 2 – Solid Plastic **L Bags** 1 – without inner liner or coatings 2 – Sift Proof 3 – Water Resistant **M Bags** 1 – Multiwall 2 – Multiwall, Water Resistant	X – PG I, II, III Y – PG II, III Z – PG III

In addition to the above, UN markings include: The letter "S" for solids or the internal test pressure for liquids, year of manufacture, "CAN" denotes Canada as the country authorizing the use of the UN marking, name or symbol of the manufacturer, Design Registration Number. Note: Markings may vary on cylinders or tubes. See Transport Canada's "FAQs on Cylinders and Tubes. "

UN Large MOC (capacity is more than 450 L) markings

Letter	Test or Inspection
V	Visual (External) Inspection
I	Internal Inspection
P	Pressure Test
T	Thickness Test
L	Lining Inspection
K	Leakage Test
UC	Upper Coupler Area Inspection
WF	Wet Fluorescent Magnetic Particle Inspection
C	For TC 341 tanks only if a Cold Vacuum Retention test has been carried out instead of an internal (alternative testing).
S	Structural Inspection

REPORTING REQUIREMENTS

When involved in the transportation of dangerous goods by road and there is a release or expected release of these goods, promptly report to the local authority responsible for emergencies at the location.

- Alberta EDGE (Environmental and Dangerous Goods Emergencies) at 1-800-272- 9600 (24/7)
- British Columbia Provincial Emergency Program at 1-800-663-3456
- Local police or RCMP 911

Emergency Reports are necessary if the quantity of the released or anticipated goods exceeds the limits specified in Section 8 of the TDG regulation:

Class	Packing Group or Category	Quantity
1	II	Any quantity
2	Not applicable	Any quantity
3, 4, 5, 6.1 or 8	I or II	Any quantity
3, 4, 5, 6.1 or 8	III, or without packing group	30 L or 30 kg
6.2	A or B	Any quantity
7	Not applicable	See section 39 of the *Packaging and Transport of Nuclear Substances Regulations, 2015*
9	II or III, or without packing group	30 L or 30 kg

An Emergency Report must include the following information:

- the name and contact information of the person making the report;
- the date, time and geographic location of the release; or
- the date, time and geographic location of the incident that led to the anticipated release
- the mode of transport used;
- the shipping name or UN number of the dangerous goods;
- the quantity of dangerous goods that was in the means of containment before the release or anticipated release;
- the quantity of dangerous goods estimated to have been released; and
- if applicable, the type of incident leading to the release or anticipated release, including a collision, rollover, overfill, fire, explosion or load-shift.

A Release or Anticipated Release Report must be made to CANUTEC at 1-888-CANUTEC (1-888-226-8832) or 613-996-6666 and the consignor. A 30-day follow-up report is required when a release or anticipated release report was filed. Required in the following situations:

- the death of a person;
- a person sustaining injuries that required immediate medical treatment by a health care provider;
- an evacuation of people or their shelter in place;
- the closure of a facility used in the loading and unloading of dangerous goods, or a road, a main railway line or a main waterway.
- a means of containment has been damaged to the extent that its integrity is compromised;
- the centre sill or stub sill of a tank car is broken or there is a crack in the metal equal to or greater than 15 cm (6 in.).

A Release or Anticipated Release Report must include the following in addition to the above Emergency Report information as noted above:

- the name and geographic location of any road, main railway or waterway that was closed;
- a description of the means of containment containing the dangerous goods;
- if applicable, an estimate of the number of people evacuated or sheltered in place; and
- if applicable, the number of deaths and the number of persons who sustained injuries that required immediate medical treatment by a health care provider.

TRAINING

A person is considered adequately trained for road transport if they have a solid understanding of specific topics related to their duties and the dangerous goods they handle, offer for transport, or transport. These topics include

- classification, shipping names, safety marks,
- the use of schedules,
- shipping document requirements,
- means of containment, safe handling practices, proper equipment use,
- emergency response and emergency measures
- reporting requirements

Newtz will issue a training certificate for an employee who has completed external TDG training and subsequent internal refresher training (11H TDG) every three years. Records of training and the training certificate must be kept and presented to an inspector upon request.

PROCEDURE CHECKLIST

This checklist provides a simplified overview of key steps to ensure TDG compliance before each job:

1.	**Review Load Documentation:**	• Ensure you have the necessary shipping documents, such as bills of lading or manifests, for the specific dangerous goods being transported. • Verify that the load information matches the contents of the vehicle.
2.	**Check Safety Marks and Labels:**	• Inspect the vehicle for the presence and visibility of required safety marks, including placards or labels, based on the classification of the dangerous goods being transported. • Confirm that the safety marks accurately represent the hazards of the cargo.
3.	**Examine Means of Containment:**	• Ensure that the means of containment, such as tanks or containers, are suitable and in proper condition for transporting the dangerous goods. • Check for any leaks, damage, or signs of deterioration.
4.	**Verify Compatibility and Segregation:**	• Determine if the dangerous goods being transported are compatible with each other and comply with any segregation requirements as outlined in the TDG Regulations. • Take necessary precautions to prevent any reactions or mixing that could lead to hazards.

5.	**Confirm Emergency Response Information:**	• Carry the required emergency response information, such as a copy of the Emergency Response Guidebook (ERG) or any specific product safety data sheets (SDS) applicable to the cargo. • Ensure you are familiar with the proper emergency procedures in case of spills, leaks, or accidents involving the dangerous goods.
6.	**Check for Required Equipment:**	• Ensure that the truck is equipped with necessary safety equipment, such as fire extinguishers, spill containment materials, and personal protective equipment (PPE) suitable for the transported goods. • Confirm that all safety equipment is in proper working condition.
7.	**Review Reporting and Documentation Requirements:**	• Understand and be prepared to comply with any reporting requirements in the event of incidents or accidents involving dangerous goods during transportation. • Familiarize yourself with the procedures for reporting to the appropriate authorities.
8.	**Take Precautions During Loading and Unloading:**	• Follow proper procedures for the loading and unloading of dangerous goods to minimize risks and ensure safe handling. • Use appropriate equipment and techniques as required for the specific cargo.