



**SARNIA REFINERY**

**COLD STRESS CONTROL**

Issue Date: December 3, 2014 Revision #: Original

**STANDARD**

Document Number:

4000-ZSD-SMSAFECA-036753

Next Review Date: September 3, 2019

Document Owner: Manager, EH&S

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**SCOPE AND PURPOSE:**

This standard defines the controls to reduce the risk of cold stress.

**ROLES AND RESPONSIBILITIES:**

The **Occupational Hygienist** is accountable to provide support, as necessary to ensure appropriate control of worker exposure to cold stress and conformance to this Standard.

**Workers and Supervisors** are accountable to evaluate their work tasks for the potential risk of cold stress and implement necessary controls to prevent cold related illness or injury.

**Workers** are accountable to report to the Health Centre any physical or medical conditions that increase their vulnerability to cold related illness or injury.

The **Occupational Health Nurse** is accountable to notify Supervisors, as appropriate, of a worker's increased vulnerability to cold related illness or injury.

**GUIDANCE AND STANDARDS:**

When work must be performed in a cold environment:

- Adequate whole-body insulating dry clothing should be worn. (Note: Layering provides better insulation).
- Cold protective clothing should be selected according to the level of cold and physical activity.
- If the worker's clothing is likely to become wet during work:
  - For light work - clothing should be impermeable to water; and
  - For moderate to heavy work – clothing should be water repellent, breathable and changed as it becomes wetted.

- Workers should remain hydrated by regular consumption of water and/or warm sweet drinks.
- Long periods of sitting or standing still should be minimized.
- Regular and warm-up breaks should be taken in warm/temperature controlled areas.
- Signs and symptoms of cold related illness and/or injury must be reported to the Supervisor.

A work/warm-up schedule for each 4-hour work period must be followed in accordance with the following table provided by the American Conference of Governmental Industrial Hygienists:

**Table 1 – Work/Warm-Up Schedule Table**

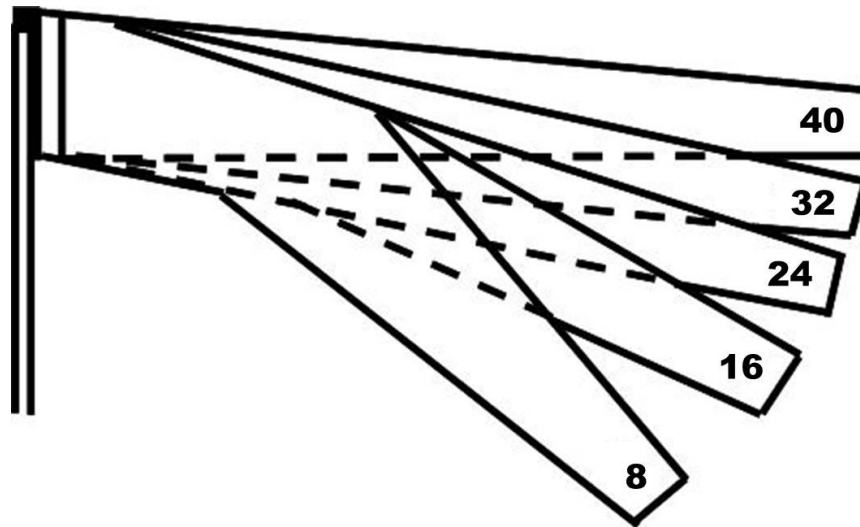
Air Temp (°C)	Calm Air		8km/hr Wind		16km/hr Wind		24km/hr Wind		32km/hr Wind	
	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks	Max Work Period	# of Breaks
-26 to -28	Normal	1	Normal	1	75min	2	55min	3	40min	4
-29 to -31	Normal	1	75min	2	55min	3	40min	4	30min	5
-32 to -34	75min	2	55min	3	40min	4	30min	5	★       ↓	
-35 to -37	55min	3	40min	4	30min	5	★			
-38 to -39	40min	4	30min	5	★					
-40 to -42	30min	5	★							
-43 & below	★		↓		↓		↓		↓	

★ Non-emergency work should cease.

**Notes for Table 1:**

- This table applies to any 4-hour work period with moderate to heavy work activity and warm-up periods of 10 minutes in a warm location and an extended break (e.g., lunch) at the end of the 4-hour work period also in a warm location.
- For light work activity with limited physical movement, apply the schedule one step lower in the table.
- Wind socks can be used to estimate wind speed using the diagram in Figure 1 below.

*Figure 1 – Wind Sock Wind Speed Indication (km/hr)*



**DEFINITIONS:**

<b>Cold Stress</b>	The response of the body to cold temperatures resulting from heat loss from a portion of the body.
<b>Cold Related Illness</b>	A decrease in core body temperature, to the point where normal muscle and brain functions are impaired (i.e., hypothermia).
<b>Cold Related Injury</b>	The cooling of body tissues that result in injuries to the exposed part (i.e., chilblain, trench foot, frostnip, frostbite).
<b>Light Work</b>	Sitting with light manual hand/arm work, driving, standing with some light arm work and occasional walking.
<b>Moderate Work</b>	Sustained moderate hand/arm work, moderate arm/leg/trunk work, light pushing/pulling, normal walking.
<b>Heavy Work</b>	Intense arm and trunk work, carrying, shoveling, manual sawing, pushing/pulling heavy loads, walking at a fast pace.

**END OF STANDARD**

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**REVISION LOG**

<b>Date</b> MM/DD/YYYY	<b>Revision</b>	<b>Section</b>	<b>Comment</b>
12/03/2014	Original		New Standard. Added Livelink number to header. eSign page lost due to Edit. Approved by Peter Lynch. (M. Courteaux)

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