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DOCUMENT NAME:	**Nylon Web Sling Operating Practices**		
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Safety, Health and Environmental Standards

SCL –SH&E – 124

Nylon Web Sling Operating Practices

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Section 1.0 Introduction

1.1 Purpose

Nylon web slings are used throughout Syncrude in various rigging applications. This standard provides guidelines for proper care of nylon slings in order to prevent damage and minimize the likelihood of sling-related incidents.

This standard (including the attached appendices) is not intended to provide a complete, stand-alone set of instructions for all activities associated with Nylon Sling Operations & Inspections. Additional details regarding other applicable key references are identified in Section 1.3 of this document, which where applicable must be consulted, as these sources provide additional information regarding relevant Nylon Sling Operations & Inspections. This standard does present the minimum criteria that must be applied (in conjunction with other key references and any instructions from the Sling manufacture) when performing Nylon Sling Operations & Inspections.

In the event that manufactures recommendations for use, inspection, storage or handling are more stringent than the requirements in this document follow manufactures guidance.

1.2 Applicability

This standard applies throughout Syncrude, in all areas, departments, or projects where nylon web slings are used.

1.3 Key References

Alberta O.H. & S. Act
Alberta Occupational Health and Safety Code
Syncrude's General Purchase Specification No. T-25
SCL 142A Mobile Crane & Lifting Standard

Section 2.0 General Guidelines for Nylon Sling Care and Damage Prevention

This section describes how to properly care for nylon slings to maximize their safe use and longevity.

2.1 Damage Prevention for Nylon Slings

2.1.1 Don't allow damage to slings by any sharp edges.

2.1.2 Don't pull slings out from under anything.

2.1.3 Don't choke around rough surfaces.

2.1.4 Slings should not be dragged on the floor or over an abrasive surface.

2.1.5 Twisting and kinking the legs shall be avoided.

2.1.6 Slings with metal fittings shall not be dropped.

2.1.7 Prolonged exposure to sunlight can affect the strength of the sling. When nylon web slings experience extensive exposure to sunlight or ultraviolet light, the sling must be destroyed & discarded.

2.1.8 Where possible, the identification tag end should be attached to the hook to prevent tag damage

2.2 Exposure to Environmental Hazards

2.2.1 Don't use slings on or near hot or cold pipes / surfaces with temperatures that are greater than 90^{o}C (194^{o}F) or less than -40^{o}C (-40^{o}F).

2.2.2 Don't use slings where there are chemicals (acid, caustic) present that can cause damage.

2.2.3 Don't store slings where they can be damaged by UV rays (sunlight and other UV sources).

2.2.4 Slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustics or acids are present.

2.3 Sling Inspection

2.3.1 Initial Inspection. Before using any new sling, it shall be inspected to ensure that the correct sling is being used as well as to determine that the sling meets the requirements of the Standard.

2.3.2 Frequent Inspection. This inspection should be made by the person handling the sling each time the sling is used.

2.3.3 Periodic Inspection. Designated personnel should conduct this inspection. Frequency of inspection should be based on:

- Frequency of sling use
- Severity of service conditions and
- Experience gained on the service life of slings used in similar applications.

Note: At a minimum, even if slings do not meet the above-mentioned requirements for adjusted periodic inspections based on usage they must have a documented periodic inspection completed annually to be considered fit for lifting service.

2.4 Sling Storage

2.4.1 Slings should be stored properly. They must be hung or rolled up in a cool, dry, and dark place to prevent environmental damage.

2.5 Personnel Training & Competency Requirements

2.5.1 All Syncrude and Contract employees who use nylon slings must complete the Rigging Training Supplement on Nylon Slings.

2.5.2 Personnel shall only perform activities for which they possess the necessary skills/qualification and which they are authorized to perform.

Section 3.0 Preparing for the Job

The following instructions are the minimum operating requirements for the use of nylon web slings, which support good rigging practices and the safe use of nylon slings.

3.1 General Guidelines

3.1.1 Don't use slings that show signs of abrasion (scraped or worn areas).

3.1.2 Don't over use a sling or keep it for a long time. Old slings have a high probability of having been shock loaded or stretched. There are generally no visible warning signs for this type of damage.

3.2 Using Nylon Slings

3.2.1 Conduct a Field Level Risk Assessment prior to the use of any nylon sling.

3.2.2 Take multiple precautions for choke applications.

- Double wrap nylon slings to prevent slippage.
- Double wrap nylon slings when lifting a light load.
- Where possible, double wrap the sling when using a single sling to lift a load.
- Where possible, use a shackle on a nylon sling.
- Ensure the shackle's pin is in the eye of the sling, not against the sling leg.
- Never force the eye down towards the load once the load is applied.
- In a choker hitch, slings shall be long enough to ensure the choker fitting chokes on the sling's webbing and never on the fitting on the other end.

3.2.3 Knotting or other makeshift devices shall not be used to shorten slings.

3.2.4 Check the temperature of objects that slings will contact or come near to. Nylon slings shall not be used where temperature is in excess of 90^{o}C (194^{o}F) or below -40^{o}C (-40^{o}F). This includes the ambient temperature or surface temperature of the component to be lifted.

3.3 Proper Selection of Nylon Slings

3.3.1 Slings having suitable characteristics for the types of load, hitch, and environment shall be selected in accordance with appropriate tables/charts.

3.3.2 Ensure the slings in a multi-sling lift are of equal length. Lay them out on the floor to measure them.

3.3.3 Slings should be long enough so that the rated load is adequate when the angle of the legs is taken into consideration.

3.3.4 Use chemically resistant slings in chemical active environments. Chemically active environments can affect the strength of a synthetic web sling.

3.3.5 The rigger and the person directing the lift shall consider the following before using a nylon web sling:

- Type of environment (acidic, alkaline or other)
- Exposure conditions
- Chemical concentration
- Temperature

Section 4.0 Using Nylon Slings

4.1 Safe Use of Nylon Slings

4.1.1 Correct rigging procedures shall be used to ensure that the slings are securely attached and the load is properly balanced.

4.1.2 Be aware that nylon slings stretch and store energy under applied load. Always keep out of the "line of fire" in the event of a sudden release of the sling or any attachments.

4.1.3 NEVER exceed the manufacturer's recommended Safe Working Load of any rigging component, including the nylon web sling.

4.1.4 Don't connect 2 or more slings together without the use of proper hardware (shackles).

4.1.5 The sling's legs must contain or support the load from the sides above the center of gravity when using a basket hitch.

4.1.6 Don't force the eye down towards the load once tension is applied, in a choke application. Don't pound the eye down.

4.1.7 Don't go below a 45-degree sling angle. This is the angle the sling makes from the horizontal.

4.1.8 Don't tow with nylon slings. (This is against Syncrude rules – nylon slings stretch and store a tremendous amount of energy).

4.2 Safely Working with a "Loaded Sling"

4.2.1 Protect slings from all sharp edges by using proper softeners (wear pads). (Sharp, jagged, abrasive, razor sharp, rough square edge, bolts, etc.).

4.2.2 Suspended loads shall be kept clear of all obstructions.

4.2.3 Shock loading is prohibited.

4.2.4 Never pull the sling from under the load, if the sling gets trapped when load is resting on it.

4.2.5 Load applied to the hook should be centered in the base (bowl) of hook to prevent point loading on the hook.

4.2.6 During lifting, with or without load, personnel shall be alert for possible snagging.

4.2.7 In a basket hitch, the load should be balanced to prevent slippage.

4.3.1 Personnel Safety

4.3.1 All portions of the human body shall be kept from between the sling and the load, and from between the sling and the crane hook or hoist hook, while the sling is being tightened around the load.

4.3.2 Never walk under a load. All personnel shall be kept clear of suspended loads and the loads about to be lifted. During the entire lift, all personnel shall be alerted for possible snagging.

4.3.3 Personnel shall not ride a sling or the load.

4.3.4 Don't stand in the line of fire. Due to the stored energy in a loaded nylon sling, a broken sling poses a serious threat of injury.

Section 5.0 Rejection Guidelines

The listed rejection criteria are intended as minimum guidelines. If the user or authorized individual has any doubt as to the serviceability of the sling after inspection, the user shall not hesitate to destroy the sling. If in doubt destroy and discard the sling. Cost should never be a driver when considering the sling's suitability for use. Repairs of any kind to nylon slings are not allowed.

The importance of inspection of the slings must not be underestimated even though in general, if they look good they probably are good. Their damage is usually easy to detect; worn eyes and worn or distorted fittings, cuts, holes, punches, tears, frayed material, broken stitching and acid, caustic or heat burns – all are immediately evident and indicate that the slings should be replaced.

5.1 A nylon web sling must be permanently removed from service and physically destroyed (cut up) to ensure that it cannot be used as a sling when any of the following circumstances occur or are evident:

a) Any edge cuts.

b) Any abrasion across the web (scraped or worn areas).

c) Any damaged threads running lengthwise (cuts, tears, and snags).

d) Any separation of the webbing (holes, spaces).

e) Any heat damage (melting, charring, steam damage, radiant heat damage, welding spatters, burns).

f) Any chemical damage (by acid, caustic).

g) Any broken stitching in the splice section that forms the eye.

h) Permanently attached end fittings that are modified, repaired, corroded, cracked, deformed, distorted, broken, showing signs of wear or abrasion, or are excessively pitted or signs of welding or grinding.

i) Missing or illegible sling identification tag.

j) Any damage by ultraviolet rays from sunlight and other sources (bleaching of materials, increased stiffness, discoloring).

k) Knots in any part of sling.

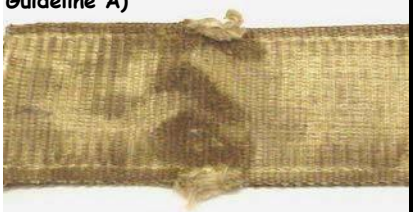
l) If sling is known to have been shock loaded even though there may be no visible signs of damage.

m) If you suspect a sling has been overloaded, even though there may be no visible signs of damage.

n) If a sling is very dirty or has any particles, slag, grindings, filings, or dirt embodied in the webbing.

NYLON WEB SLING REJECTION GUIDELINES - PHOTOS

Guideline A)



Guideline A)

Guideline B)

Guideline B)

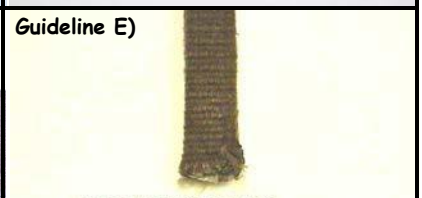
Guideline B)

Guideline B)

Guideline C)

Guideline E)

Guideline E)



Guideline F)

Guideline G)

Guideline I)

Guideline J)

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Guideline I)

Guideline J)

Guideline N)

Guideline N)

Appendix A Revision History

September 2006. Two documents were combined (*Nylon Web Slings – Tips and Operating Practices* and *Nylon Web Slings – Rejection Guidelines*) and reformatted to conform to Syncrude's EHS Standard System. During this revision, the various rules were organized to address damage prevention, preparation for use, use of slings, and rejection of slings.

August 2011
- Standard was reviewed and no content changes were made at this time.

August 2014
- Standard was reviewed and no content changes were made at this time.

September 2020
- Revision number of this document was changed from 3 to 4.
- Expanded on documents purpose in section 1.1
- Updated 2.3.1 removing requirement to perform an initial inspection on repaired or modified, repairs or modifications to slings are rejection criteria as per section 5 of this standard, meaning that slings in those conditions are to be destroyed and not inspected put back into service.
- Added annual inspection note to section 2.3.3
- Added word "competency" to title of section 2.5 and added requirement 2.5.2
- Added "In the event that manufactures recommendations for use, inspection, storage or handling are more stringent than the requirements in this document follow manufactures guidance." To section 1.
- Updated section 1.3 Key references
  - Removed specific dates from regulatory codes as the most recent enacted is to be used
  - Removed ASME B30.9 from key references, AB OHS Code provides specific guidance on the utilization of that consensus standard for inspection, handling and usage of Nylon slings.
- Added disclaimer of liability & copyright statement to cover page.