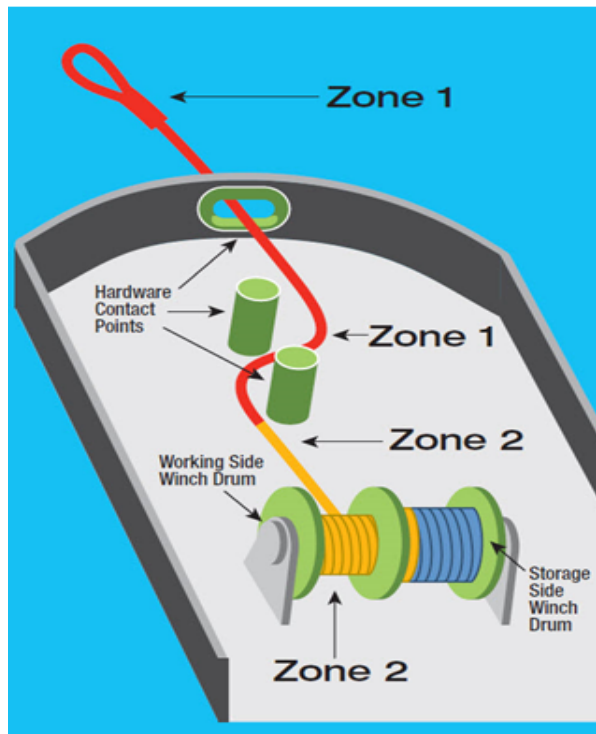


# MOORING ROPES & TAILS INSPECTION GUIDELINES

## HMPE ROPES –


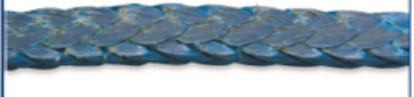






### Zone 1:

The zone that most commonly contacts the chock, roller, and/or fairlead.

### Zone 2:

The zone that most commonly contacts the working side of the winch drum.

<p><b>CUT YARNS</b> REPAIR OR RETIRE</p>  <p><b>WHAT</b> &gt; 18 or more cut YARNS in proximity (within any 1 meter section of rope)</p> <p><b>CAUSE</b> &gt; Abrasion &gt; Sharp edges and surface &gt; Cyclic tension wear</p> <p><b>CORRECTIVE ACTION</b> If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.</p>	<p><b>COMPRESSION</b> REPAIR</p>  <p><b>WHAT</b> &gt; Visible sheen &gt; Stiffness reduced by flexing the rope &gt; Not to be confused with melting &gt; Often seen won winch drums</p> <p><b>CAUSE</b> &gt; Fiber molding itself to the contact surface under a radial load</p> <p><b>CORRECTIVE ACTION</b> Flex the rope to remove compression</p>	<p><b>DISCOLORATION</b> REPAIR OR RETIRE</p>  <p><b>WHAT</b> &gt; Fused fibers &gt; Brittle fibers &gt; Stiffness</p> <p><b>CAUSE</b> &gt; Chemical Contamination</p> <p><b>CORRECTIVE ACTION</b> If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.</p>
<p><b>INCONSISTENT DIAMETER</b> REPAIR OR RETIRE</p>  <p><b>WHAT</b> &gt; Flat areas &gt; Lumps and bumps</p> <p><b>CAUSE</b> &gt; Broken internal strands &gt; Shock loading</p> <p><b>CORRECTIVE ACTION</b> If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.</p>	<p><b>MELTED OR GLAZED</b> REPAIR OR RETIRE</p>  <p><b>WHAT</b> &gt; Fused Fibers &gt; Visibly charred and melted fibers, yarns and/or strands &gt; Extreme stiffness &gt; Unchanged by flexing</p> <p><b>CAUSE</b> &gt; Exposure to excessive heat, shock load, or a sustained high load</p> <p><b>CORRECTIVE ACTION</b> If possible, remove affected section and re-splice with a standard end-for-end splice. If re-splicing is not possible, retire the rope.</p>	<p><b>TWIST SEVERITY</b> REPAIR OR RETIRE</p>  <p><b>WHAT</b> &gt; Where a single line of picks (or crowns) does not form a straight line, but spirals around the circumference of the rope</p> <p><b>CAUSE</b> &gt; Improper reeling or unreeling of rope</p> <p><b>CORRECTIVE ACTION</b> If possible, remove affected twist. Pay out as much of the twisted section onto a flat surface as possible; manually untwist; milk the twist to the end of line for best results; wind the line back onto winch under reasonable tension, taking care to prevent re-twisting. If twist is present, count the number of 360° rotations per meter, and record it above.</p>



**FIGURE D1: NEW ROPE**



**FIGURE D2: USED ROPE**



**FIGURE D3: DAMAGED ROPE**



**GLAZED, NO FIBRE DAMAGE (BENT ROPE)**



**GLAZED, NO FIBRE DAMAGE (FLAT ROPE)**



**SAME ROPE AFTER FLEXING-NO PERMANENT DAMAGE**



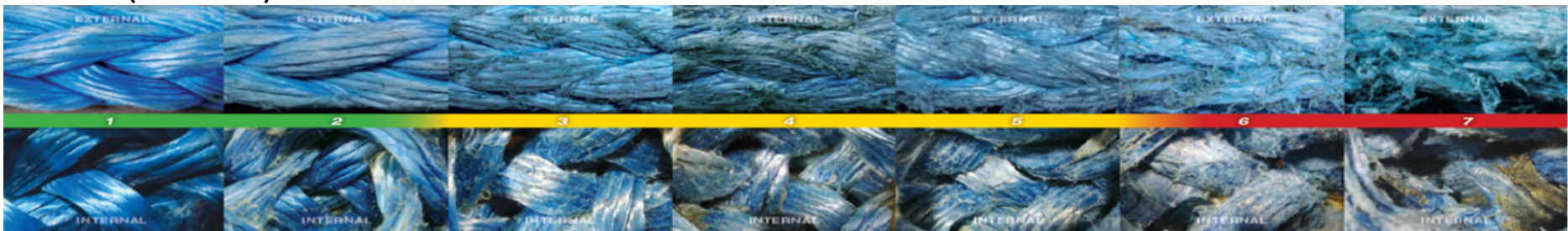


**FIGURE D12: ACTUAL MELTING DAMAGE, OFTEN BLACK HARDENED YARN END THAT CAN NOT BE FLEXED BACK. IN THIS PICTURE APPROX. 50% OF ONE STRAND IS ACTUALLY MELTED AWAY.**



**FLEXED DAMAGE**

### **ABRASION (Scale 1 to 7)**



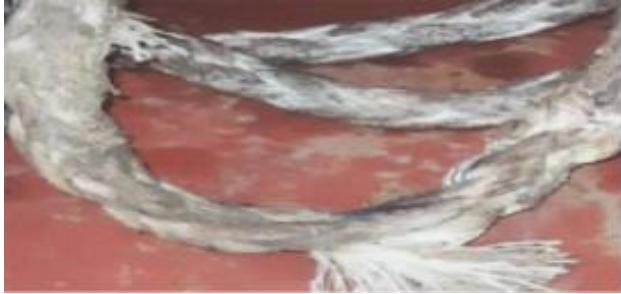
## MOORING TAILS –



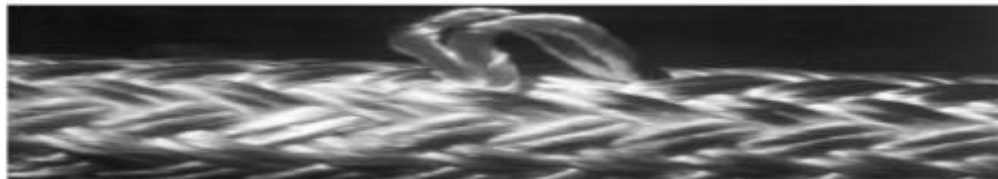
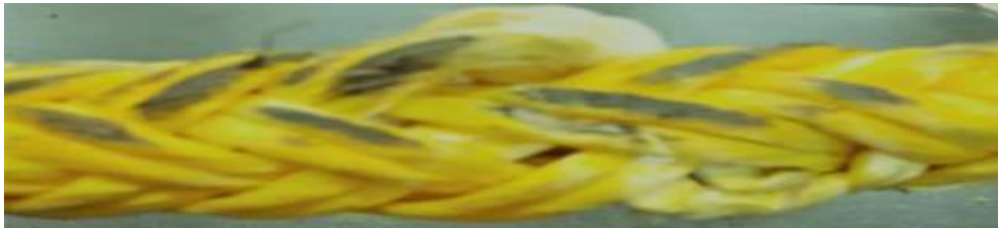
**Shock Loading / Cyclic Tension wear**



**External Abrasion**



**Cut yarns**



**Pulled Yarn Strands**

## Chafe Guards



**GOOD**



Acceptable





**Not Acceptable**





External abrasion without protection



*External  
abrasion  
with  
protection*



Internal abrasion without protection



*Internal  
abrasion  
with  
protection*





**WITHOUT CHAFE  
GEAR (HMPE ON  
METAL)**

*Friction caused by poorly surfaced deck hardware causes both external abrasion to surface strands and abrasion to internal strands by creating relative movement between the fibers in the rope.*



**WITH CHAFE  
GEAR (HMPE  
ON HMPE)**

*External abrasion is primarily limited to the chafe gear itself, and the relative movement of internal and external fibers is greatly reduced or eliminated completely.*