



- 1.0 **General Product Handling, Storage and Transportation**
- 2.0 **Installation Guidelines Cables**
- 3.0 **Material Safety Data Sheet- Cables**

INSTRUCTIONS

GENERAL PRODUCT HANDLING, STORAGE,
AND TRANSPORTATION



OmanCables
الكابلات العمانية



1.0 PURPOSE

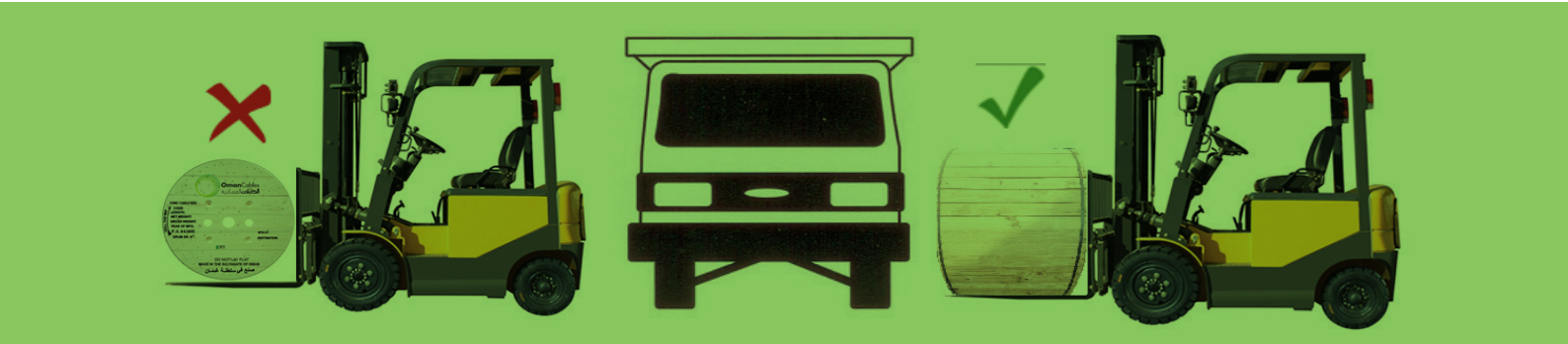
The purpose of this document is to define the procedure for the handling, storing, transportation of cables produced by **Oman Cables Industry (OCI)**.

2.0 SCOPE

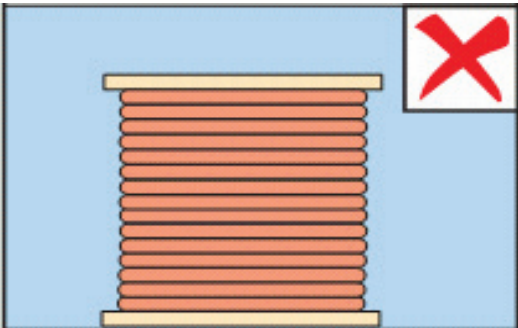
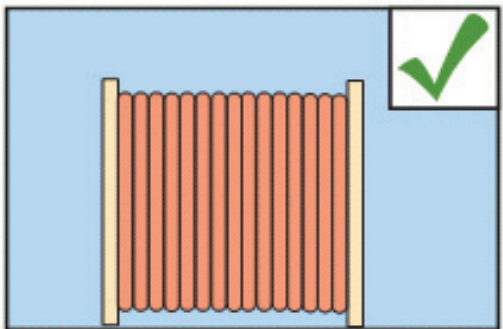
This document gives the guidelines for handling, storage & transportation of the cable drums.

3.0 PROCEDURE FOR HANDLING

- 3.1 Do not lift the drum in flat position.
- 3.2 Use crane or forklift of proper capacity to handle the cable drum.
- 3.3 Do not lift the drum by putting the forks in between the flanges of the drum and do not lift the drums from barrel (drums must be lifted by using suitable rod through center spindle hole).
- 3.4 Adjust the distance between the forks to sit the flanges properly.
- 3.5 Roll the drum in the direction shown on the cable drum.



LIFT DRUMS ON FORK TRUCKS CORRECTLY

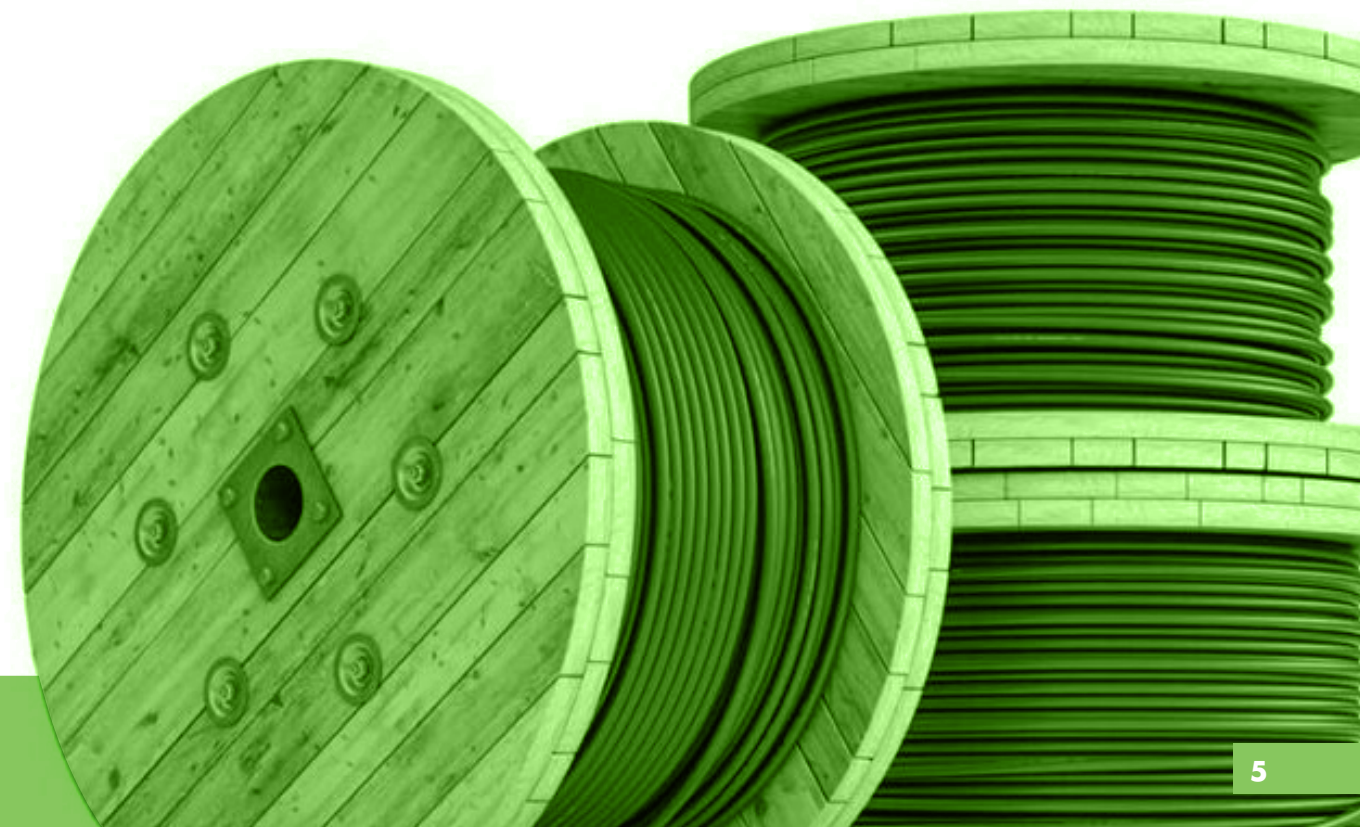
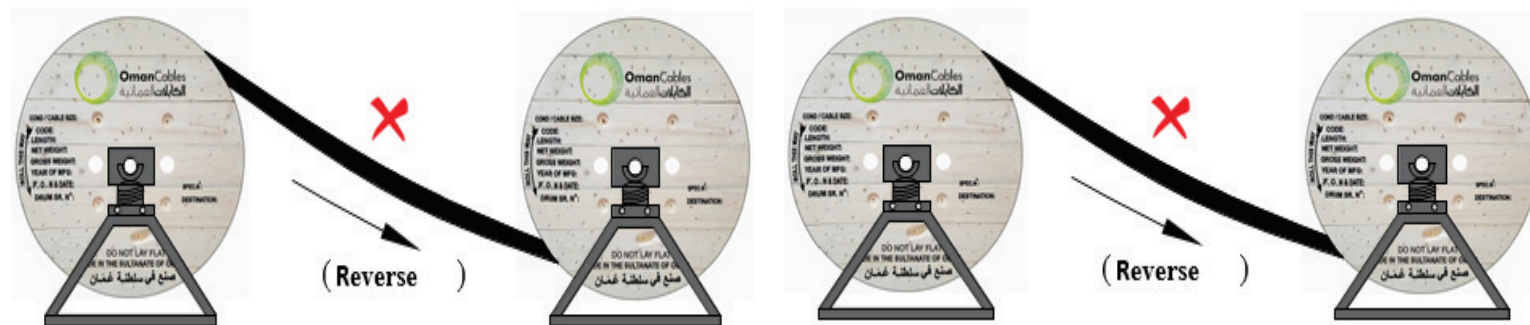
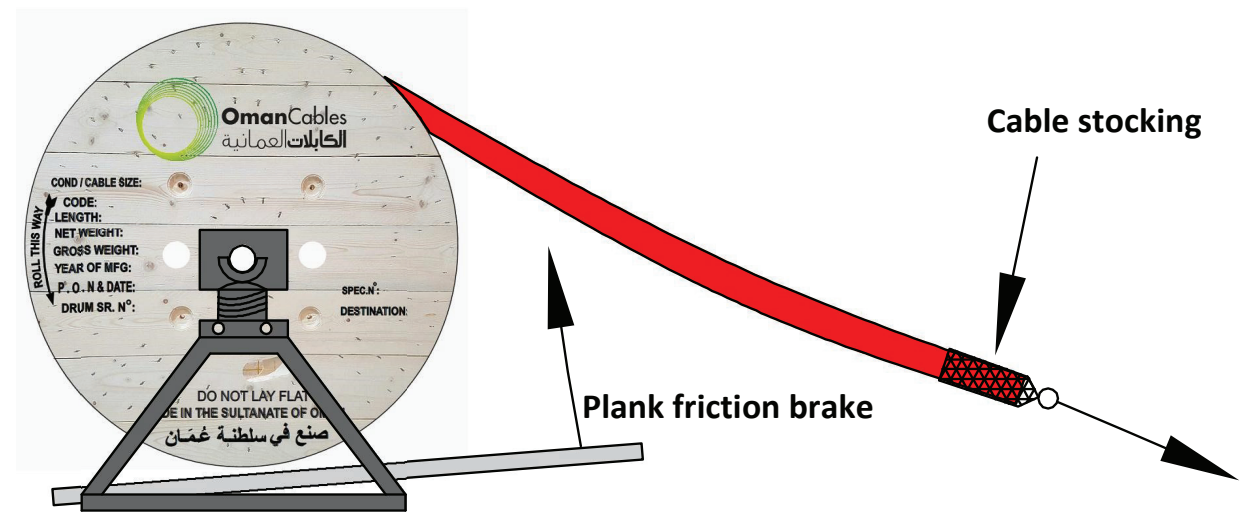


3.6 Where re-winding is necessary, extreme caution must be taken during the process to avoid damage. The following must be adhered to:

- When coiling from one drum to another always coil from the top of one drum to the top of the second drum.
- The pay-off drum must rotate in the opposite direction to “ROLL THIS WAY” and the take-up drum must rotate in the same direction as “ROLL THIS WAY”.
- This operation is best done with sufficient distance between the two drums to avoid sharp changes of direction.
- The proper bending radius to be maintained during rewinding cable/wire to other drum and in any case, the drum barrel diameter of new drum should not be less than that of existing drum from which the cables/wires rewinding is done to the other drum. In the case of cable cutting, cable ends must be secured with heat shrinkable end caps.
- The winding must be done equally and uniformly with no over-riding of the coils or pinching on the sides of the drum.
- The pay-off drum must have an adequate braking system to prevent the cable from becoming loose on the drum.

3.7 In the case of unwinding of cable from the drum, extreme caution must be taken during the process to avoid damage. The following must be adhered to:

- The cable must always leave from the top of the drum.
- The drum must rotate opposite to “ROLL THIS WAY”.
- The drum braking must be just sufficient to stop the drum rotating when the pull ceases.

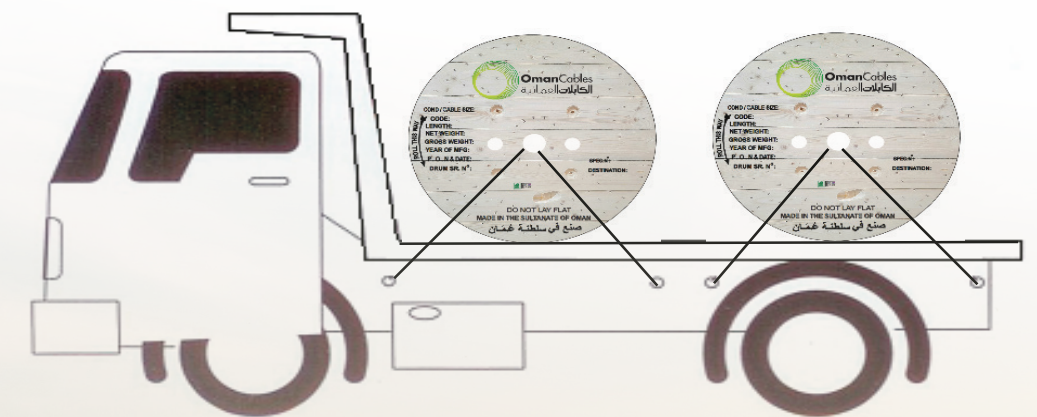
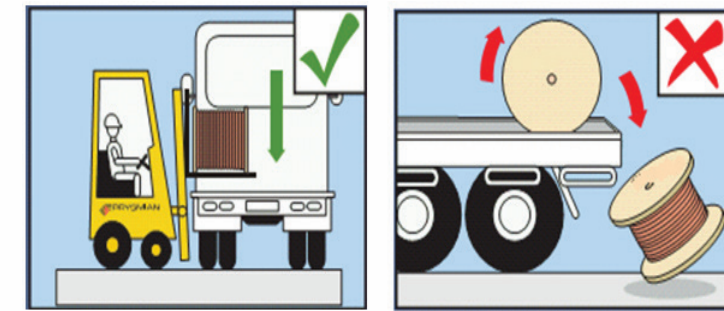
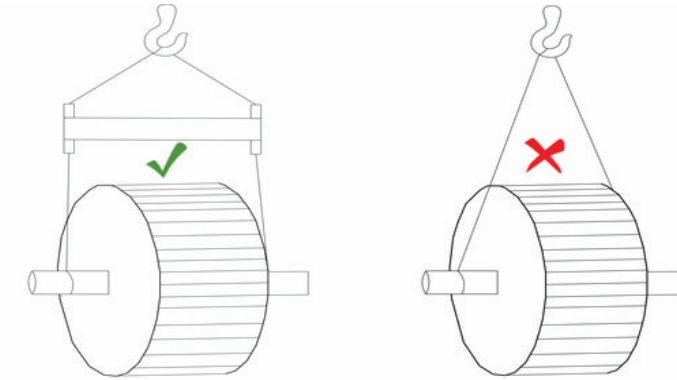


4.0 PROCEDURE FOR STORAGE & TRANSPORTATION

- 4.1 Do not lay the cable drum flat & stacked flat one above the other.
- 4.2 Use wooden block support to avoid the rolling over.
- 4.3 Keep sufficient gap between stored drums.
- 4.4 Cable drums with cables on it is recommended to store in designated drum storage area. There should not be any accumulation of water in the drum storage area. If drums are to be stored for longer duration (i.e. more than 3 months) then it should be stored on a firm/concrete surface under a shade & should be protected from direct sunlight, rainwater etc.
- 4.5 As a special case, Cable drums can be stored under direct sunlight for max. up-to 06 months ensuring that there is no accumulation of water near the cable drums. However, keeping drums under direct sunlight may affect the quality & strength of the drums and hence, proper handling care shall be considered at site.
- 4.6 While transportation also care to be taken as above but in addition forklifts should be used for loading or unloading the cable drums in the truck.
- 4.7 It is a good practice to use pesticides at regular intervals in storage area to avoid termite & rodent attack on wooden drums.



Do not lay drums flat on their sides, use proper wedges to prevent drums rolling.



SECURE DRUMS ADEQUATELY BEFORE TRANSPORTATION



5.0 CONTAINER LOADING

- 5.1 Ensure containers (wall, floor, locks, door etc.) are free of damages and dirt before loading.
- 5.2 Cable drums shall be placed in rolling / vertical position.
- 5.3 Cable drums should not be placed in flat position.
- 5.4 A minimum gap of 100 mm required between the drum and container walls as well as between the drums.
- 5.5 All the drums must be secured with wooden wedges / stoppers, nailed on the container floor, to arrest the movement of the drums during transportation.
- 5.6 Drums up to flange dia. 1200 mm must be secured with minimum one lashing belt, with required breaking strength, per row.
- 5.7 Drums above 1200 mm up to 2200 mm flange diameter must be secured with 2 lashing belts, with required breaking strength, per row.
- 5.8 Drums above 2200 mm flange diameter must be secured with wire rope slings and turn buckles with required breaking strength.
- 5.9 Provide packing on both the bush holes to prevent breakage of belts / ropes due to sharp edges on the bush hole / plate.
- 5.10 Ensure weight distribution within the container is balanced.
- 5.11 Ensure optimal utilization of the container capacity.
- 5.12 Use wedges, lashing belts and wire ropes as per Annexure I - and Annexure-II.
- 5.13 Refer Annexure-II for loading positions.

ANNEXURE-I

Sr. No.	Flange Diameter of Drum (mm)	Wedge size (mm)			Lashing
		L	W	H	
1	1200 - 700	220	90	100	Belt
2	1800 - 1400	350	230	130	Belt
3	2200 - 2000	550	230	230	Belt
4	3000 - 2400	550	230	230	Wire rope

ANNEXURE-II (PICTURES)

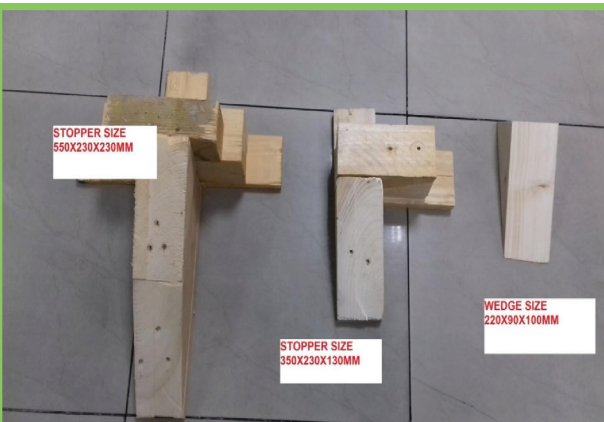
A) VERTICAL POSITION



B) ROLLING POSITION



C) WEDGE / STOPPER



6 UNLOADING CABLE DRUMS FROM CONTAINERS

- 6.1** Unloading by forklift.
- Park the truck close to the offloading dock.
 - Switch on the dock leveler and place the lip of the dock leveler inside the container.
 - Remove the wooden stoppers and lashing belts of the drums.
 - Lift the drums with a suitable container model forklift with required load capacity and fork length.
- 6.2** Unloading by rolling.
- Roll out the drums from the container to the loading dock and lift the drum using forklift / crane.
 - Use spreader beams while lifting with cranes.
- 6.3** Container grounding.
- Lift the containers with crane / side loading truck with required load carrying capacity.
 - Roll out the cable drums and lift using a forklift / crane.
 - Put the lifting belts / chains through the bush holes.
 - Use spreader beams while lifting with cranes.
- 6.4** Unloading drums from Open top containers.
- Drums can be rolled out from the containers and lifted with forklift / crane.
 - Lift the drum using a crane direct from the container.
 - Put the lifting belts / chains through the bush holes.
 - Use spreader beams while lifting with cranes.





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INSRTRUCTIONS

INSTALLATION GUIDELINES FOR CABLES



OmanCables
الكابلات العمانية



PRECAUTIONS TO BE TAKEN DURING INSTALLATION

2

Always ensure that there are end cap on both ends of the cable.

4

Cable should not be pulled suddenly or by jerks but accelerate slowly & smoothly to constant pulling speed & sharp edges, corners or contacts should be avoided. Minimum Bending radius should be maintained as per Data sheet/ Catalogue.

1

Never lay the drum in flat position & never pull the cable from such flat laid cable drum.

3

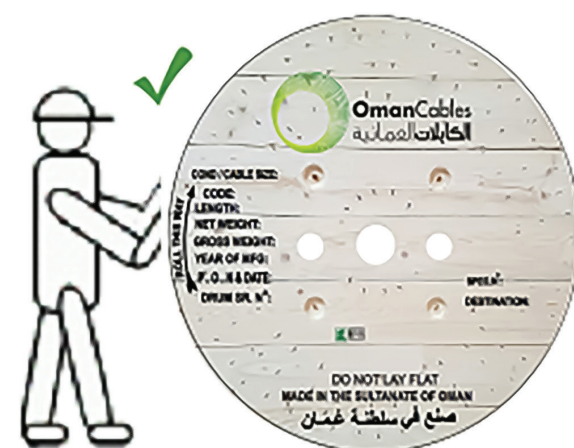
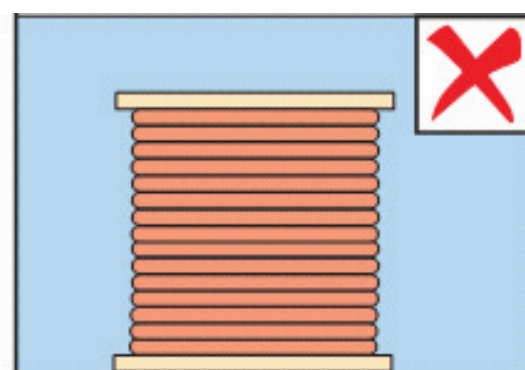
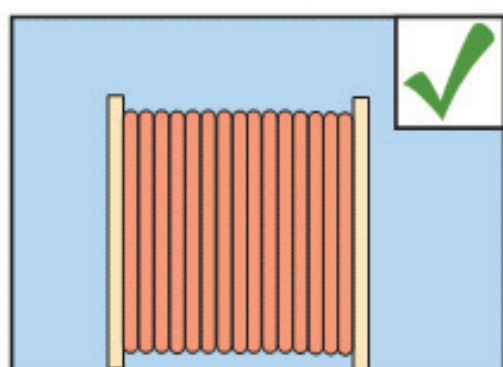
The cable should be pulled by "Pulling eye". Tension on the cable should not exceed the maximum pulling tension recommended for that cable.

5

In the case of PVC cables (PVC insulated or PVC sheathed cables) and LSZH sheathed cables, unwinding from drum & installation should be done only when both the cables and ambient temperature are above 0 ° Centigrade & have been so far at least previous 24 hours.



LIFT DRUMS ON FORK TRUCKS CORRECTLY



INSTALLATION GUIDELINES FOR LSZH SHEATHED CABLES

Low Smoke Zero Halogen (LSZH) sheaths (also known as LSOH, LSOH or LSF Low Smoke Fumes), does not have the same mechanical strength as other sheathing materials like Polyvinyl Chloride (PVC) & Polyethylene (PE), particularly at higher temperatures. It is therefore strongly recommended by Oman Cables Industry (OCI) that LSZH sheathed cables shall be used mainly for indoors application (not under direct sun-light), and only where cables have been specified to have low smoke and toxic gas emission property.

INSTALLATION

We recommend the following special guidelines, in conjunction with the standard installation instructions.

- The LSZH cables must be stored in proper packed condition, in the shade. Direct exposure to sun must be avoided.
- As LSZH sheaths have lower tear strength property when compared to PVC and PE sheaths, special care must be taken during handling & installation to avoid any damage. Even a small cut on the LSZH sheath could result in the sheath splitting.
- Use pay-in rollers and corner rollers of non-metallic material (Nylon or Teflon) at least every 4 meters when laying the cable.
- Wherever possible, installation must be under cover or indoors. Where outdoor installation is unavoidable, direct exposure of cable to sunlight must be avoided by using suitable cable trays with suitable covers.
- The cable must not come into contact with hot surfaces in any circumstances.

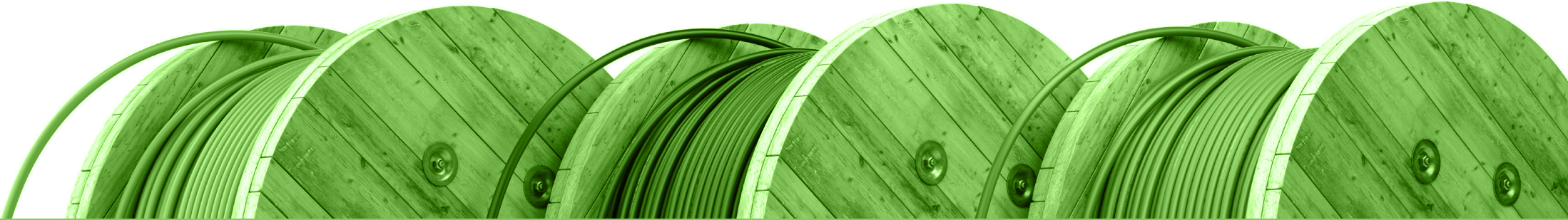
- The installation bending radius must not be less than that stated on the cable data sheet. (Care must be taken, particularly if cable is installed by the flaking method, that this minimum bending radius is not compromised.)
- Any clamping device must not be applied directly onto the outer sheath. There must be some form of cushion (for instance a rubber pad of approximately 3 mm thickness) between the cable's outer sheath and the clamps.
- The distance of unsupported length of cable for horizontal and vertical run must follow below recommendations:

Overall diameter of cable (mm)	Maximum spacing between the supports for horizontal run (mm)	Maximum spacing between the supports for vertical run (mm)
Up to 14.9	350	450
19.9 – 15.0	400	550
39.9 – 20.0	450	600
59.9 – 40.0	700	900
60.0 & above	1100	1300

RE-WINDING

During re-winding, extreme caution must be taken during the process to avoid damage. The following must be adhered to:

- The winding must be done equally and uniformly with no over-riding of the coils or pinching on the sides of the drum.
- The pay-off drum must have an adequate braking system to prevent the cable from becoming loose on the drum.





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NON-HAZARDOUS SUBSTANCE

NON-DANGEROUS GOODS





1. PRODUCT DESCRIPTION

This cable material safety datasheet is applicable to:

- Overhead Conductors.
- Building Wires and Earthing Cables up-to & including 1kV.
- Low Voltage (LV) Cables up-to & including 3.3kV.
- Fire Survival (FS) Cables up-to & including 1kV.
- Medium Voltage (MV) Cables up-to & including 35kV.
- Specialised Cables (E.g. Photo Voltaic (PV) Cables, DRYLAM™ Cables, AIRBAG™ Cables etc.)

2. COMPOSITION INFORMATION

- Conductor: Copper, Aluminium.
- Insulation: Polyvinyl chloride (PVC), Cross-Linked Polyethylene (XLPE), Low Smoke Zero Halogen (LSZH).
- Armour: Aluminium Wire, Aluminium Tape, Galvanised Steel Wire, Galvanised Steel Tape.
- General Tapes (E. g. Polypropylene (PP) Tape, Polyester tape).
- Special Tapes (E.g. Glass Mica Tape, Semi-conductive Tape, Water Blocking Tape, Laminated (LAT) Tape etc.).
- Sheathing materials (E. g. Polyethylene (PE), Polyamide, Low Smoke Zero Halogen).
- Lead Sheath.

3. HAZARDS IDENTIFICATION

Based on available information, these materials are not classified as hazardous and can be handled using normal industrial hygiene. Wash hands with soap and water before taking food or at the end of works. Exposure to hot material may cause burns. Prolonged exposure to lead sheath can cause various health issues.

4. FIRST AID MEASURES

SKIN CONTACT:

If puncture wounds, cuts or irritation occurs, flush skin with running water and look for first-aid. If bleeding from puncture wound/cut doesn't stop or irritation is experienced, look for immediate medical assistance.

EYE CONTACT:

During eye contacts, wash out immediately with fresh water which is at room temperature with clean hands. In all cases of eye contamination, it is a sensible precaution to seek medical advice. If eye irritation persist for some time or eye gets reddish, look for immediate medical assistance.

INHALATION:

Not an expected route of exposure. However, if dust exposure occurs during cutting, remove victim from exposure. Remove contaminated clothing and loosen remaining clothing. Allow patient for most comfortable position and keep warm. Keep person at complete rest until fully recovered. Seek medical advice if effects persist.

INGESTION:

Not an expected route of exposure. However, if material is ingested, rinse mouth with fresh water. If swallowed, do NOT induce vomiting. Give a glass of fresh water to drink. Never give anything by the mouth to an unconscious patient. If vomiting occurs give further water and seek for medical advice.

NOTES TO PHYSICIAN:

Treat symptomatically.



5. FIRE-FIGHTING MEASURES

Cables are not flammable but will decompose in general fire ($>950^{\circ}\text{C}$) and may emit toxic fumes. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or products of combustion.

Suitable extinguishing media: If material is involved in a fire use water fog (or if unavailable fine water spray), foam, dry agent (carbon dioxide, dry chemical powder). If material is in service use foam or dry agents (carbon dioxide, dry chemical powder).



6. ACCIDENTAL RELEASE MEASURES

Wear protective equipment to prevent skin and eye contamination. Avoid inhalation of dust if present. Collect for reuse or recycling.

7. HANDLING AND STORAGE

HANDLING:

Staffs who involves with direct or in-direct cable handling shall be trained in proper cable handling & transportation procedures. Direct eye contact or skin contact shall be avoided without any negligence. For better cable handling procedure, please refer OCI's General Product Handling Instructions.

STORAGE:

Cable storage shall be done in a cool, dry and well-ventilated place following all recommended safety measures. Cable & cable drums shall not be exposed to direct sunlight. Storage location shall also have adequate firefighting equipment and regular firefighting training shall be provided to staff placed at storage location.



8. EXPOSURE CONTROLS / PERSONAL PROTECTION

All personals shall wear overalls, safety helmets, safety glasses, safety shoes and impervious gloves when working with cable handling, transportations & terminations.



9. PHYSICAL & CHEMICAL PROPERTIES

Appearance Form: Drums or coils or spools.

Colour: Black or another colour based on customer requirement.

Odour: No Odour.

10. STABILITY AND REACTIVITY

Chemical stability: Thermally stable when stored and used as directed.

Conditions to avoid: Elevated temperatures and sources of ignition.

Hazardous reactions: No known hazardous reactions.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with recommendation.

12. ECOLOGICAL INFORMATION

Avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

No adverse health effects expected if the product is handled in accordance with recommendation.

14. REGULATORY INFORMATION

Not applicable.

15. TRANSPORT INFORMATION

Cables are not classified as Dangerous Goods to transport by Road, Railways, Marine & Air. Suitable methods shall be used to fix the drums with platform to avoid drum movement during transportation.





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