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BNRML / THIKA, KENYA

# CHANGE OF KEBS STANDARD DKS 261-2012 TABLE 5

**REMOVAL OF 1.8MM GI WIRE FROM KEBS STANDARDS MAKING CHAIN LINK**

# A TECHNO-COMMERCIAL ANALYSIS FOR BENEFIT OF USING 2.00mm HOT DIP GI WIRE WITH 62 GSM COATING OVER USING 1.80mm HOT DIP GI WIRE WITH 56GSM COATING FOR “CHAINLINKS” TO SERVE THE KENYAN MARKET

Hot Dip Wire Galvanizing is a process where hard drawn wires are annealed to bring down the UTS almost close to the parent material i.e. Wire rod and coated with a layer of zinc by immersing in a bath of molten zinc, comprising of prior cleaning and treatment in solution baths. When exposed to atmosphere, pure zinc reacts with atmospheric oxygen to form ZnO which further reacts with CO2 to form ZnCO3, a shiny grey strong material which protects the wire underneath from corrosion.

This low UTS zinc coated material serves as a primary raw material for Chain-links and other products which are used for several fencing applications.

**N/B: This note will only deal with HOT DIP GI WIRE for producing CHAIN-LINKS.**

**PRIMARY RAW MATERIAL AND PRESENT CHAINLINK SPECIFICATIONS AS PER KEBS: DKS 261-2012**

* Standard wire diameters: 1.80mm, 2.00mm, 2.50mm, 3.00mm, 3.55mm & 4.00mm (+/- 2.5% tolerance)
* Standard mesh sizes: 50mm, 63mm & 75mm.
* Standard heights of rolls: 4ft, 5ft, 6ft, 7ft, 8ft.
* Standard length of the rolls: 18 meters.
* UTS & Coating weights:

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| --- | --- | --- | --- |
| **S.NO.** | **WIRE DIAMETER (mm)** | **Minimum UTS (kg/mm2)** | **COMMERCIAL COATING WEIGHT (GSM: g/m2)** |
| **1** | **1.80** | 35 | 56 |
| **2** | **2.00** | 35 | 62 |
| **3** | **2.50** | 35 | 72 |
| **4** | **3.00** | 35 | 80 |
| **5** | **3.55** | 35 | 90 |
| **6** | **4.00** | 35 | 100 |

However, 90% of the demand for chain-links in KENYA is for “1.80mm Hot-Dip Galvanized wire with 56GSM coating” ( allowable and commonly used 53.2GSM(5% allowance)) and with 75mm x 75mm mesh for different standard roll heights and a standard roll length of 18mtrs. The importers always import and use the negative tolerance material which is very thin material of 1.75mm dia with a coating of 53 gms/m2.

**OBJECTIVE**: ***The objective is to replace this huge demand with “2.00mm Hot-Dip Galvanized wire with 62 GSM coating” keeping all other specifications same and to completely stop using 1.80mm hot dip GI wire for producing chain-links thereby standardizing the minimum wire diameter for producing chain-links as 2.00mm. Uganda and Tanzania has changed their standards to minimum 2mm wire dia.***

***What has been taken as a reference to suggest this?***

**BS EN 10244-2:2009**

<https://www.scribd.com/doc/58015001/BS-EN-10244-2-2009-Steel-wire-and-wire-products-Nonferrous-metallic-coatings-on-steel-wire-Part-2-Zinc-or-zinc-alloy-coatings>

TECHNICAL BENEFITS:

1. **STRONG & DURABLE CHAINLINKS:** The nation will notice a positive change by eradicating the use of 1.80mm HOT DIP GI wire for chain-links completely and replacing it with 2.00mm HOT DIP GI wire. This uplift in the technical parameters will ensure durability and longevity of the products helping the nation to reach new heights of QUALITY and saving of foreign exchange as the replacement of chain link will take longer.

Adding a few numbers to this: 1.8 mm wire will have a life of approximately 3-5 years after which the wire will be completely rusted. However, 2.0 mm wire will have a life of approximately 7-8 years to do the same.

1. **LONG COATING LIFE:** By replacing the “1.80mm Hot Dip GI wire with 56GSM coating” with “2.00mm Hot Dip GI wire with 80GSM coating”, longevity of the coating will increase especially in areas where the chain-links are subjected to moisture prone conditions. Also white rust development time can be prolonged with the heavy coating.

Adding numbers to this statement: The time taken for the 1.8mm wire with 56 GSM of zinc coating takes approximately 7-8 months to show signs of rust. 2.0mm wire with 80 GSM of zinc coating takes approximately 2 1/2 years to show signs of rust.

BENEFITS TO THE END USER:

1. **STRONGER and HEAVIER CHAINLINKS:** The 2.0 mm wire is 13% stronger and 23% Heavier than the 1.8mm wire, therefore having benefits such as:-
   1. Resistance against animal attacks.
   2. Helps reduce soil erosion.
   3. Better security against human trespassing.

1. **RESISTANCE TO RUST:** The 2.0 mm wire with 62 GSM Zinc coating increases resistance to rust by 18 months, therefore having the following benefits:-
   1. Reducing the time frame to replace the existing fence.
   2. Improved resistance to soil related deterioration (Chainlink under the soil is subject to buoyancy pressure).
2. **VALUE FOR MONEY:** The current price of a 2.0mm chainlink with 62 GSM zinc coating is Ksh 510/ft. The current price of a 1.8mm chainlink is 430/ft. Therefore, by spending extra ksh 80/ft (18%), the consumer get the double the value as the replacement takes longer.
3. **SOCIO ECONOMICS:** The consumer gets better value for his money due to longer shelf life and Kenya government saves a lot in foreign exchange as the GI wire product is completely imported in to the country.

**Prepared by:**

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