

28 kV, 1/C, TRXLPE Insulated, Bare CN Cable**1. Scope**

This standard covers the detailed requirements for 28 kV, tree retardant, cross-linked polyethylene (TRXLPE), single conductor cable with full neutral used for the distribution of electric energy.

Industry designation: **1/C +1N**

This standard applies to Seattle City Light (SCL) Stock No. 602025.

2. Application

Cable is intended for use on a nominal 26.4 kV, three-phase, 4-wire, solidly-grounded, wye-connected, 60 Hz, power system.

3. General Requirements

This detailed material standard is to be used in conjunction with the latest revision of SCL 6015.00, "Medium Voltage Cable – General."

4. Industry Standards

Cable shall meet the requirements of the following industry standard:

ICEA S-94-649-2013; "Standard for Concentric Neutral Cables Rated 5 Through 46 kV"

See SCL 6015.00 to obtain the appropriate revision date for other referenced industry standards.

5. Construction**5.1 General**

Unless indicated otherwise, all values cited below should be consistent with industry standards. They are repeated here for the convenience of the reader. The ▲ symbol indicates special City Light requirements, some of which are detailed in SCL 6015.00.

Standard Coordinator
Todd Oki

Standards Engineering Supervisor
Brett Hanson

Division Director
Bob Risch

MATERIAL STANDARD

28 kV, 1/C, TRXLPE Insulated, Bare CN Cable

standard number: **6020.03**

superseding: January 28, 2019

effective date: September 8, 2023

page: 2 of 4

5. Construction, continued**5.2 Conductor**

		Requirements	Reference
Diameter	minimum	0.318 in	ICEA S-94-649, Section 2.5
	nominal	0.325 in	ICEA S-94-649, Section 2.5, Table 2.4
	maximum	0.331 in	ICEA S-94-649, Section 2.5
Metal		1350 aluminum	ASTM B233
Stranding type		solid	ASTM B233
Class		none	none
Stranding subtype		none	none
Number of strands		none	none
Temper		H14 (1/2 hard) ▲	ASTM B609
Lay, outer layer		none	none
Lay, successive layers		none	none
Sealant for stranded conductors		not required	ICEA S-94-649, Section 2.2

5.3 Conductor Shield (Stress Control Layer)

		Requirements	Reference
Thickness, minimum point		12 mil	ICEA S-94-649, Part 3, Table 3-1

5.4 Insulation

		Requirements	Reference
Material		unfilled tree retardant cross-linked polyethylene (TRXLPE)	ICEA S-94-649, Section 4.1
Approved material formulations		specified in general material standard	SCL 6015.00
Thickness	minimum point	265 mil	ICEA S-94-649, Section 4.2, Table 4-7
	nominal	280 mil	ICEA S-94-649, Table 8-1
	maximum point	310 mil	ICEA S-94-649, Section 4.2, Table 4-7
Insulation level		100%	ICEA S-94-649, Section 4.2, Table 4-7
Basic impulse level (BIL)		150 kV crest	ICEA S-94-649, Section 4.3, Table 4-6

MATERIAL STANDARD

28 kV, 1/C, TRXLPE Insulated, Bare CN Cable

standard number: **6020.03**

superseding: January 28, 2019

effective date: September 8, 2023

page: 3 of 4

5. Construction, continued**5.5 Extruded Insulation Shield**

		Requirements	Reference
Material		discharge-free (thermosetting material)	ICEA S-94-649, Section 5.1 to 5.4.1.5
Thickness	minimum point	30 mil	ICEA S-94-649, Section 5.2, Table 5-1
	maximum point	60 mil	ICEA S-94-649, Section 5.2, Table 5-1

5.6 Concentric Neutral Conductor / Metallic Shield

Concentric neutral conductor shall be full rated.

		Requirements	Reference
Metal		copper, uncoated	ICEA S-94-649, Section 6.1
Type		round annealed wire, #14 AWG, helically applied	ICEA S-94-649, Section 6.4
Number of wires , minimum		16	ICEA S-94-649, Section 6.4, Table 6-2
Cross-sectional area , nominal		65,760 cmil	ICEA S-94-649, Section 6.4
Water blocking components for metallic shield		not required	ICEA S-94-649, Section 6.6
Maximum diameter over CN		1.30 in ▲	SCL preference

5.7 Jacket (Non-Metallic Covering)

Cable shall not be provided with a jacket.

5.8 Sheath (Continuous Metallic Covering)

Cable shall not be provided with a sheath.

5.9 Assembly and Identification

		Requirements	Reference
Red stripe identification		not required	ICEA S-94-649, Section 8.2.1.1

MATERIAL STANDARD

28 kV, 1/C, TRXLPE Insulated, Bare CN Cable

standard number: **6020.03**

superseding: January 28, 2019

effective date: September 8, 2023

page: 4 of 4

6. Packaging

		Requirements	Reference
Reel type		steel, fluted	WC 26, Section 2.1.2
Reel dimension	flange diameter, maximum	72 in ▲	SCL preference
	outside width, maximum	45 in ▲	SCL preference
	drum diameter, minimum	19 in ▲	SCL preference
	length per reel ± 10%	3,400 ft ▲	SCL preference
	gross weight, maximum	3,500 lb ▲	SCL preference

7. Issuance

Stock unit: FT

8. Approved Manufacturing Plants

Manufacturer	Location
Prysmian Group	DuQuoin, IL
	Marshall, TX
	Moose Jaw, SK, Canada
	St. Jerome, QC, Canada
Hendrix	Milford, NH
Southwire	Carrollton, GA
	Heflin, AL

9. References**SCL Material Standard 6015.00**, "Medium Voltage Cable – General"**10. Sources****Shipek, John**; SCL Standards Supervisor, subject matter expert, and originator of 6020.03