



Company Profile

Oman Cables Industry (SAOG) develops, manufactures and markets a totally integrated variety of electrical products, which include medium voltage power cables, low voltage power and control cables, pilot cables, overhead power transmission line conductors and **building wires**.

OCI offers cables with special features suitable for different types of applications, environmental conditions or as per customer requirement.

- Flame retardant properties
- Low smoke and fume (LSF) properties
- Cables with anti-termite sheaths
- UV resistant outer sheath
- Lead sheath

The manufacturing facilities are situated within the largest industrial complex in Muscat, The Sultanate of Oman, with its offices and factory presently occupying an area of 135000 sqm with future expansion plans in mind. OCI have equivalent facilities in Sohar, Oman at its Aluminum manufacturing facility and together has a capacity of copper and aluminum of more than 120,000 MT annually.

Oman Cables Industry (SAOG) has its offices in Oman, UAE, Qatar, and KSA and has an extensive network of distributors and agents throughout MENA, Asia and Europe.



Notes on the use of PVC Insulated Wires / Cables as per BS 6004/ BS EN 50525-2-31



Polyvinyl Chloride (PVC) Compounds

PVC compounds used in wires and cables as per BS 6004/BS EN 50525-2-31, are described in BS EN 50363-3 / BS 7655-4.2

Several grades of compounds are detailed in these standards for both insulation and sheathing requirements. PVC compounds are thermoplastic by nature and consequently are designed to operate within a prescribed temperature range.

Grades of PVC can therefore be selected to suit particular environment temperatures, with the maximum conductor temperature for heat resisting grade PVC being 90° C and the lowest operating temperature grade PVC below minus 30° C. Oman Cables also offer LSF and FRLS cables, suitable for use in fire hazards areas or where safety of human life against toxic gases is of prime importance.

The majority of wiring installations, however, use a general purpose grade of PVC which has a maximum conductor operating temperature of 70° C; this grade of PVC wires should not be installed or flexed when the air temperature is nearing 0° C. A wide range of bright colours can be formulated with PVC compounds.

Sheath colours are normally grey, black or white. Other colours can be provided on special order but experience has shown that for outdoor use, black colour has the highest resistance to direct sunlight, with other colour tending to fade in the time under these conditions.



Notes on the use of LSF Insulated Wires/Cables as per BS 7211/BS EN 50525-3-41

LSF Compound

LSF Compound used in wires as per BS 7211/BS EN 50525-3-41 is Thermosetting Insulation suitable for operating temperature of 90° C, Type EI5 to BS EN 50363-5.

PVC when burnt emits large quantities of dense black smoke and acid gas, and in addition to the debilitating effect of smoke and toxic fume inhalation, obscuration of fire safety exits delays or prevents escape. Improved PVC formulations producing less smoke and acid gas have been developed but still do not satisfy required emission levels. The demand therefore has been for materials to replace PVC which do not give off smoke and toxic fumes and do not contain halogens. The materials need to have the following characteristics:-

- a) Fire retardant and zero halogen
- b) Low emission of smoke, toxic fumes and acid gases during combustion
- c) Similar mechanical and electrical properties to PVC
- d) Acceptable process-ability
- e) Low additional cost

Detailed properties of the above material are

- .. Halogen Content – Max 0.5%
- .. pH value –Minimum 4.3
- .. Conductivity – maximum 10 micro Siemens/mm

Comparison of Chemical Resistance Properties of LSF and PVC

Properties	PVC	LSF
Oxidation Resistance	E	E
Heat Resistance	G-E	G
Oil Resistance	F	P
Low-Temperature Flexibility	P-G	F-G
Weather, Sun Resistance	G-E	P
Ozone Resistance	E	E
Abration Resistance	F-G	F
Electrical Properties	F-G	F
Flame Resistance	G	E
Nuclear Radiation Resistance	F	G
Water Resistance	F-G	F
Acid Resistance	G-E	G
Alkali Resistance	G-E	G
Aliphatic Hydrocarbons Resistance	P	P
Aromatic Hydrocarbons Resistance	P-F	P
Halogenated Hydrocarbons Resistance	P-F	P
Alcohol Resistance	P-F	G
Underground Burial	P-G	F-G

Legend : E = Excellent, G = Good, P = Poor, F = Fair

Materials, construction and identification



CU/PVC or CU/LSF Wire



CU/PVC/PVC or CU/LSF/LSF or CU/XLPE/LSF Cables

Conductor	Insulation	Sheath
Plain Copper (Solid or Stranded)	PVC or LSF or XLPE (Coloured)	PVC or LSF (Coloured)

OCI can provide all colours as mentioned in applicable standards for Insulation & for Sheath.

Note: LSF means Low Smoke & Fumes. It is also known as LSOH or LSZH. Therefore word 'LSF' wherever appeared in this catalogue can be considered as LSOH or LSZH.

Copper Conductor Construction

Table 1

Nominal Conductor Area (mm ²)	Minimum number of wires	Nominal diameter of conductor (mm)	Maximum conductor resistance (d.c.) at 20° C per km for Plain Annealed copper conductor (in ohm / km)
1.0	1*	1.13	18.1
1.5	7	1.59	12.1
1.5	1*	1.38	12.1
2.5	1*	1.78	7.41
2.5	7	2.01	7.41
4	7	2.52	4.61
6	7	3.12	3.08
10	7	4.00	1.83
16	6	4.80	1.15
25	6	5.90	0.727
35	6	6.90	0.524
50	6	8.10	0.387
70	12	9.70	0.268
95	15	11.40	0.193
120	18	12.90	0.153
150	18	14.30	0.124
185	30	16.00	0.0991
240	34	18.40	0.0754
300	34	20.60	0.0601
400	53	23.30	0.047
500	53	26.30	0.0366
630	53	30.00	0.0283
800	53	34.14	0.0221
1000	53	38.20	0.0176

* Solid Conductor

Note: Plain annealed copper conductor class 1 solid or class 2 stranded circular compacted or non-compacted as per BS EN 60228.

Single Core Cables (CU/PVC)

Table 2

PVC insulated, non-sheathed general purpose cables 450/750 V single core

(rigid conductor) as per BS EN 50525-2-31

Harmonized standard designation

Solid conductor H07V-U

Stranded conductor H07V-R



Nominal conductor area mm ²	Class of conductor	Nominal Radial Thickness of insulation mm	Maximum Overall diameter mm	Approximate weight kg/km
1.5	1	0.7	3.2	21
1.5	2	0.7	3.3	21
2.5	1	0.8	3.9	32
2.5	2	0.8	4.0	32
4	2	0.8	4.6	47
6	2	0.8	5.2	66
10	2	1.0	6.7	110
16	2	1.0	7.8	170
25	2	1.2	9.7	260
35	2	1.2	10.9	350
50	2	1.4	12.8	480
70	2	1.4	14.6	680
95	2	1.6	17.1	930
120	2	1.6	18.8	1160
150	2	1.8	20.9	1430
185	2	2.0	23.3	1740
240	2	2.2	26.6	2270
300	2	2.4	29.6	2840
400	2	2.6	33.2	3640
500	2	2.8	36.9	4650
630	2	2.8	41.1	5940
800	2	2.8	45.7	7780
1000	2	3.0	51.0	9635

Table 2 - A

PVC Insulated non-sheathed cable for internal wiring 300/500 V single core as per BS EN 50525-2-31.

Harmonized standard designation H05V-U



Nominal conductor area mm ²	Class of conductor	Nominal Radial Thickness of insulation mm	Maximum Overall diameter mm	Approximate weight kg/km
0.5	1	0.6	2.3	9
0.75	1	0.6	2.5	11
1.00	1	0.6	2.7	14

Construction (Table 2 & 2-A) : Plain annealed copper conductor, class 1 solid conductor, or class 2 stranded conductor, as per Table 1, PVC Insulation (Type TI -1 for 70° C operating temperature)**

** We can also provide HRPVC, Type TI -3 insulated non-sheathed cables (suitable for 90° C operating temperature)

Single Core Cables (CU/LSF)

Table 3

Thermosetting (LSF) insulated, non-sheathed cables 450/750 V Single core

(rigid conductors) as per BS EN 50525-3-41

Harmonized standard designation

Solid conductor H07Z-U

Stranded conductor H07Z-R



Nominal conductor area mm ²	Class of conductor	Nominal Radial Thickness of insulation mm	Maximum Overall diameter mm	Approximate weight kg/km
1.5	1	0.7	3.3	21
1.5	2	0.7	3.4	21
2.5	1	0.8	4.0	32
2.5	2	0.8	4.1	32
4	2	0.8	4.7	47
6	2	0.8	5.4	66
10	2	1.0	7.0	110
16	2	1.0	8.0	170
25	2	1.2	10.1	260
35	2	1.2	11.3	350
50	2	1.4	13.2	480
70	2	1.4	15.1	680
95	2	1.6	17.6	930
120	2	1.6	19.4	1160
150	2	1.8	21.6	1430
185	2	2.0	24.1	1740
240	2	2.2	27.5	2270
300	2	2.4	30.6	2840
400	2	2.6	34.3	3640
500	2	2.8	38.2	4650
630	2	2.8	42.5	5940

Table 3 - A

Thermosetting (LSF) Insulated non-sheathed cable for internal wiring 300/500 Volts

single core as per BS EN 50525-3-41. Harmonized standard designation H05Z-U



Nominal conductor area mm ²	Class of conductor	Nominal Radial Thickness of insulation mm	Maximum Overall diameter mm	Approximate weight kg/km
0.50	1	0.6	2.4	9
0.75	1	0.6	2.6	11
1.00	1	0.6	2.8	14

Construction (Table 3 & 3-A) : Plain annealed copper conductor - Class 1 solid conductor or class 2 stranded conductor, as per Table 1, Thermosetting (LSF) insulation (Type EI5 for 90°C operating temperature)

Single Core Cables (CU/PVC/PVC)

Table 4

Plain annealed copper conductor as per Table 3, PVC insulated, PVC sheathed cable 300/500 V single core as per BS 6004



Nominal conductor area mm ²	Nominal Radial Thickness of insulation mm	Nominal Radial Thickness of sheath mm	Overall diameter Maximum mm	Approximate weight kg/km
1*	0.6	0.8	4.5	28
1.5*	0.7	0.8	5.0	36
2.5*	0.8	0.8	5.7	51
4	0.8	0.9	6.7	75
6	0.8	0.9	7.3	98
10	1.0	0.9	8.8	150
16	1.0	1.0	10.1	220
25	1.2	1.1	12.1	300
35	1.2	1.1	13.5	400

* Solid Conductor

Single Core Cables (CU/XLPE/LSF or CU/LSF/LSF)

Table 5

Plain annealed Copper Conductor as per Table 1, Thermosetting insulated (XLPE or LSF), LSF sheathed cables 450/750 V single core as per BS 7211



Nominal conductor area mm ²	Nominal Radial Thickness of insulation mm	Nominal Radial Thickness of sheath mm	Overall diameter Maximum mm	Approximate weight kg/km
1*	0.7	0.8	4.8	28
1.5	0.7	0.8	5.2	36
2.5	0.7	0.8	5.6	51
4	0.7	0.9	6.4	75
6	0.7	0.9	7.1	98
10	0.7	0.9	8.1	150
16	0.7	0.9	9.2	220
25	0.9	1.0	11.4	300
35	0.9	1.1	12.8	400

* Solid Conductor

Table 6

**Single-core 70° C thermoplastic (PVC) insulated cables, non-armoured,
with or without sheath
(COPPER CONDUCTORS)**

Ambient temperature: 30° C
Conductor operating temperature: 70° C

CURRENT-CARRYING CAPACITY (amperes)

Conductor cross sectional area	Reference method A (enclosed in conduit in thermally insulating wall etc.)		Reference Method B (enclosed in conduit on a wall or in trunking etc.)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical)				
	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three phase a.c.	2 cables, single-phase a.c. or d.c.	3 or 4 cables, three phase a.c.	2 cables, single-phase a.c. or d.c. touching	3 or 4 cables, three phase a.c. flat and touching or trefoil	2 cables, single phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	3 cables, three-phase a.c. trefoil	Spaced by one diameter	
1 (mm ²)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	11	12
1	11	10.5	13.5	12	15.5	14	-	-	-	-	-
1.5	14.5	13.5	17.5	15.5	20	18	-	-	-	-	-
2.5	20	18	24	21	27	25	-	-	-	-	-
4	26	24	32	28	37	33	-	-	-	-	-
6	34	31	41	36	47	43	-	-	-	-	-
10	46	42	57	50	65	59	-	-	-	-	-
16	61	56	76	68	87	79	-	-	-	-	-
25	80	73	101	89	114	104	131	114	110	146	130
35	99	89	125	110	141	129	162	143	137	181	162
50	119	108	151	134	182	167	196	174	167	219	197
70	151	136	192	171	234	214	251	225	216	281	254
95	182	164	232	207	284	261	304	275	264	341	311
120	210	188	269	239	330	303	352	321	308	396	362
150	240	216	300	262	381	349	406	372	356	456	419
185	273	245	341	296	436	400	463	427	409	521	480
240	321	286	400	346	515	472	546	507	485	615	569
300	367	328	458	394	594	545	629	587	561	709	659
400	-	-	546	467	694	634	754	689	656	852	795
500	-	-	626	533	792	723	868	789	749	982	920
630	-	-	720	611	904	826	1005	905	855	1138	1070

Table - 6 A
For Wires / Cables as mentioned in Table 6

VOLTAGE DROP (per ampere per metre)

Conductor operating temperature: 70° C

Conductor cross sectional area	2 cables d.c.		2 cables, single-phase a.c.		3 or 4 cables, three-phase a.c.				
	2 (mV/ A/m)	Reference Methods A & B (enclosed in conduit or trunking) 3	Reference Methods C & F (clipped direct, on tray or in free air) 4		Reference Methods A & B (enclosed in conduit or trunking) 6	Reference methods C & F (clipped direct, on tray or in free air)			
			Cables touching	Cables spaced*		Cables touching, Trefoil 7	Cables touching, Flat 8	Cables spaced*, Flat 9	
1 (mm ²)	44	44	44	44	38	38	38	38	38
1.5	29	29	29	29	25	25	25	25	25
2.5	18	18	18	18	15	15	15	15	15
4	11	11	11	11	9.5	9.5	9.5	9.5	9.5
6	7.3	7.3	7.3	7.3	6.4	6.4	6.4	6.4	6.4
10	4.4	4.4	4.4	4.4	3.8	3.8	3.8	3.8	3.8
16	2.8	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4
25	1.75	1.80	1.75	1.80	1.55	1.50	1.55	1.55	1.55
35	1.25	1.30	1.25	1.30	1.10	1.10	1.10	1.10	1.15
50	0.93	1.00	0.95	0.97	0.85	0.82	0.84	0.84	0.86
70	0.63	0.72	0.66	0.69	0.61	0.57	0.60	0.60	0.63
95	0.46	0.56	0.50	0.54	0.48	0.43	0.47	0.47	0.51
120	0.36	0.47	0.41	0.45	0.41	0.36	0.40	0.40	0.44
150	0.29	0.41	0.34	0.39	0.36	0.30	0.34	0.34	0.40
185	0.23	0.37	0.29	0.35	0.32	0.26	0.31	0.31	0.36
240	0.180	0.33	0.25	0.31	0.29	0.22	0.27	0.27	0.34
300	0.145	0.31	0.22	0.29	0.27	0.190	0.25	0.25	0.32
400	0.105	0.29	0.20	0.27	0.25	0.175	0.24	0.24	0.31
500	0.086	0.28	0.185	0.26	0.25	0.160	0.23	0.23	0.30
630	0.068	0.27	0.175	0.25	0.24	0.150	0.22	0.22	0.29

* **Note:** Spacing larger than one cable diameter will result in a larger voltage drop

Table 7

Single-core 90° C thermosetting insulated (XLPE or LSF) cables, non-armoured, with or without sheath (COPPER CONDUCTORS)

Ambient temperature: 30° C
Conductor operating temperature: 90° C

Conductor cross-sectional area	Reference method A (enclosed in conduit in thermally insulating wall etc.)		Reference Method B (enclosed in conduit on a wall or in trunking etc.)		Reference Method C (clipped direct)		Reference Method F (in free air or on a perforated cable tray horizontal or vertical)			
	2 cables, single phase a.c. or d.c.	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c	3 or 4 cables, three-phase a.c.	2 cables, single-phase a.c. or d.c. flat and touching	3 or 4 cables, three-phase a.c. flat and touching or trefoil	2 cables, single-phase a.c. or d.c. flat	3 cables, three-phase a.c. flat	Touching	3 cables, three-phase a.c. trefoil
1	2	3	4	5	6	7	8	9	10	
(mm ²)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)	(A)
1	14	13	17	15	19	17.5	-	-	-	-
1.5	19	17	23	20	25	23	-	-	-	-
2.5	26	23	31	28	34	31	-	-	-	-
4	35	31	42	37	46	41	-	-	-	-
6	45	40	54	48	59	54	-	-	-	-
10	61	54	75	66	81	74	-	-	-	-
16	81	73	100	88	109	99	-	-	-	-
25	106	95	133	117	143	130	161	141	135	135
35	131	117	164	144	176	161	200	176	169	169
50	158	141	198	175	228	209	242	216	207	207
70	200	179	253	222	293	268	310	279	268	268
95	241	216	306	269	355	326	377	342	328	328
120	278	249	354	312	413	379	437	400	383	383
150	318	285	393	342	476	436	504	464	444	444
185	362	324	449	384	545	500	575	533	510	510
240	424	380	528	450	644	590	679	634	607	607
300	486	435	603	514	743	681	783	736	703	703
400	-	-	683	584	868	793	940	868	823	823
500	-	-	783	666	990	904	1083	998	946	946
630	-	-	900	764	1130	1033	1254	1151	1088	1088

Table - 7 A
For Wires /cables as mentioned in Table 7

VOLTAGE DROP (per ampere per metre)

Conductor operating temperature: 90° C

Conductor cross-sectional area	2 cables d.c.		2 cables, single-phase a.c.		Reference Methods A & B (enclosed in conduit or trunking)	Reference Methods A & B (enclosed in conduit or trunking)	3 or 4 cables, three-phase a.c.			
	(mV/A/m)		Reference Methods C & F (clipped direct, on tray or in free air)				Reference methods C & F (clipped direct, on tray or in free air)			
	2	3	Cables touching	Cables spaced*			Cables touching, Trefoil	Cables touching, Flat	Cables spaced*, Flat	
1 (mm ²)	46	46	46	46	40	40	40	40	40	40
1.5	31	31	31	31	27	27	27	27	27	27
2.5	19	19	19	19	16	16	16	16	16	16
4	12	12	12	12	10	10	10	10	10	10
6	7.9	7.9	7.9	7.9	6.8	6.8	6.8	6.8	6.8	6.8
10	4.7	4.7	4.7	4.7	4.0	4.0	4.0	4.0	4.0	4.0
16	2.9	2.9	2.9	2.9	2.5	2.5	2.5	2.5	2.5	2.5
25	1.85	1.90	1.85	1.85	1.65	1.60	1.60	1.60	1.60	1.65
35	1.35	1.35	1.35	1.35	1.15	1.15	1.15	1.15	1.15	1.20
50	0.99	1.05	1.00	1.00	0.90	0.87	0.87	0.87	0.87	0.89
70	0.68	0.75	0.71	0.73	0.65	0.61	0.61	0.62	0.62	0.65
95	0.49	0.58	0.52	0.56	0.50	0.45	0.45	0.46	0.46	0.49
120	0.39	0.48	0.43	0.47	0.42	0.37	0.37	0.38	0.38	0.42
150	0.32	0.43	0.36	0.41	0.37	0.31	0.31	0.32	0.32	0.37
185	0.25	0.37	0.30	0.36	0.32	0.26	0.26	0.28	0.28	0.33
240	0.190	0.33	0.25	0.31	0.29	0.22	0.22	0.24	0.24	0.29
300	0.155	0.31	0.22	0.29	0.27	0.195	0.195	0.21	0.21	0.27
400	0.120	0.29	0.20	0.27	0.25	0.175	0.175	0.195	0.195	0.26
500	0.093	0.28	0.185	0.26	0.24	0.160	0.160	0.180	0.180	0.25
630	0.072	0.27	0.175	0.25	0.23	0.150	0.150	0.170	0.170	0.24

* **Note:** Spacing larger than one cable diameter will result in a larger voltage drop