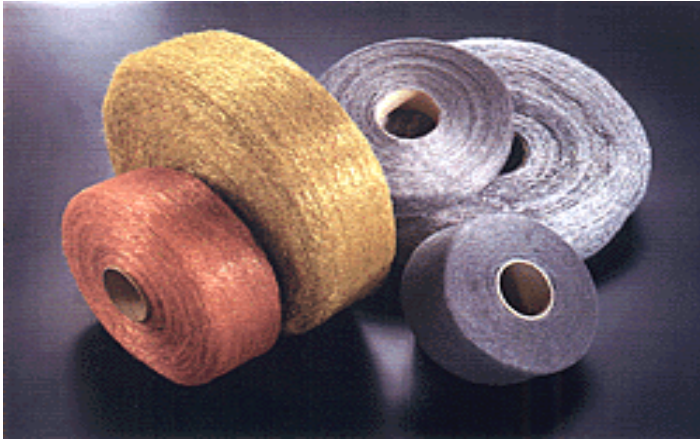


“ Green Steel Engineered Metallic Fibres “



## Green Steel Engineered wool and fibres



Low Carbon Steel Wool  
Stainless Steel Wool  
Copper Wool  
Lead Free Brass Wool  
Bronze Wool  
Zinc Wool  
Aluminium Wool



Low Carbon Steel Fibres  
Stainless Steel Fibres  
Copper Fibres  
Lead Free Brass Fibres  
Bronze Fibres  
Zinc Fibres  
Aluminium Fibres



Steel Fibres for Concrete

## Green Steel Engineered Steel Fibres for Friction Materials

GREEN STEEL	SO1S	SO1	SO1LC	SO1HP	SOHV	SOHV2	SO33	SOP3	SO1INOX
Specifications	Steel fibre, Oil free	Steel fibre Oil free	LOW CARBON Oil free	Extremely LOW CARBON	Steel fibre Oil free	Steel fibre Oil free	Steel fibre Oil free	Steel fibre Oil free	Stainless steel fibre, Oil free
Bulk Volume	120-140	150-170	140-160	N/A	175-220	210-270	110-170	100-150	100-120
Tamped Volume		100-120	85-115	60-100	125-170	160-200	80-120	n. a.	n.a.
Density gr/cc	7.8	7.8	7,8	7,8	7.8	7.8	7.8	7.8	7.7
Acetone extract %	0.0-0.2	0.0-0.2	0,0-0,2	0,0-0,2	0.0-0.2	0.0-0.2	0.0-0.2	0.0-0.2	0.0-0.2
Hardness , HB	300	300	250	235	300	300	300	300	n. a.
Length	short	short	short	short	long	Extra long	Thick/Long	Extra short	short
Chemical analysis	→	C: 0.06-0.13%			Mn : 0,5-1,1%	Si: 0.10-0.20%	P: 0.04max.	S: 0.05max.	Steel Cr/Mo: 17%
Retained %			< 0,06 %	< 0,02%					
1.000mm	0-5	0-1	0-1	0 -0,5	0-2			0-1	0-5
0.600mm	0-5					5-15			
0.500mm		0-5	0-7	0-2 ( 710 mic)	5-15		3-17	0-3	0-10
0.250mm	10-20	10-20	5-20	1-6 (425 mic)	10-25			3-13	
0.200mm				5-12 ( 212 mic)		30-40			
0.150mm							32-48		
0.125mm	20-30	20-30	10-25		20-30			10-30	20-40
pass	50-70	45-60	50-70	N/A	40-55	50-60	42-58	60-90	45-75
Suggested Applications	Friction materials Dry mix Wet mix	Friction materials Dry mix Wet mix	Low Carbon helps to reduce noise and wear increases thermal conductivity	Low Carbon helps to reduce noise and wear increases thermal conductivity	Friction materials Dry mix , wet mix Improves preforming	Friction materials with high mechanical requirements	Friction materials Dry mix , wet mix Internal mixer process	Friction materials Dry mix .	Friction materials High resistance to the atmospheric agents

## Green Steel Engineered Metallic Fibres for Friction Materials

GREEN STEEL	SOT1	SOR1	SOB1	SOA1	SL58	SL60	HC21	HC22
Typical values	Brass fibre Oil free Lead free	Copper fibre High purity Oil free	Bronze fibre Oil free Lead free	Aluminium fibre Oil free	Brass chips	Brass chips Lead Free	Copper wire Chopped	Copper wire Chopped
Bulk Volume	n.a.	40-75	100 *	100-300	25-40	25-40	-	-
Tamped Volume	40-70	30-55	77 *	100-200	25-35	25-35	-	-
Density gr/cc	8.5	8.88			8,4	8,4	8,9	8,9
Acetone extract %	0.0-0.2	0.0-0.2	0.0-0.2	0.0-0.2	0,2 max.	0,2 max	0,2 max	0,2 max
Length average , mm	short	short	short	-	-	-	6	4
Chemical analysis %	Cu:67,Zn:33 Pb< 50 ppm	Cu:99.9 Pb< 10 ppm	Cu : 90 ,Sn: 10	Al > 95%	Cu :60 Zn: 38 Pb : 2	Cu: 60 Zn 40 Pb < 50 ppm	Cu 99,9 min.	Cu 99,9 min
Retained %			( typical values)					
1.000mm	0.-1.5	0-3	2	0-4				
0.850mm					0-1	0-1		
0.500mm	0-15	10-25	4.6	0-30	10-45	10-45		
0.250mm	5-25	30-45	7.6	10-60				
0.200mm					50-80	50-80		
0.150mm								
0.125mm	30-70	20-40	35.9	25-75				
pass %	15-40	5-20	49.1	0-30	12 max	12 max		
Suggested applications	Friction materials Dry mix,wet mix N.A.O. High thermal dispersion Good mechanical reinforcement Decreases wear	Friction materials Dry mix,wet mix N.A.O. Good mechanical reinforcement Increases friction Decreases wear	Friction materials   * typical value	Friction materials High thermal conductivity  Very low apparent density	Friction materials Standard applications	Friction materials Lead free formulations	Friction materials NAO	Friction materials NAO

## Steel fibres for reinforcing Concrete



The Green Steel Group has been producing and selling **steel fibers for concrete** for many years. They are successfully used as a reinforcement material due to their particular shape.

Steel fibers for concrete are produced by all our plants and they are approved according to EN 14889-1

## “ Green Steel Engineered Metallic Wools”



Green Steel Group is the leading world's producer of wools: steel, copper, brass, bronze, zinc and aluminum wool.

Our R&D Department works together with our customers on special alloys in order to supply new products, both wools and fibers, that can meet their expectations. We can also study new applications in cooperation with research centers, universities, etc.

Our wools are used in various fields and for different applications: for this reason we have created and registered a new trademark for our products:



Coppower, is a brand born from the vast experience of Green Steel Group experts in everything that is copper, brass and bronze in the form of wools, laminates and fibres.

See our specific web for it [www.coppower-gsg.com](http://www.coppower-gsg.com)



## About Green Steel España

**Green Steel España** is a Solana Green Steel Group joint-venture founded in 1989

Green Steel España acts as a dedicated business company that furthers strategic business agreements specifically with South European , Mediterrean and Latin-American countries

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