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Cost 19738-74

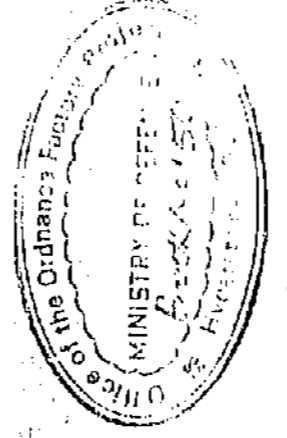
19738-74

SILVER SOLDERS GRADES.

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1. This standard pertains to silver solders of general purpose and determines the grades of solders.
2. Grades and chemical composition of silver solders should correspond to the data given in the table.
3. Use of silver solders are shown in the recommended appendix 1.
4. Data as regards melting point, density and resistivity of silver solders are given in the reference appendix No. 2.

FOR REVIEW



APPROVED		MATEL/SPECN		
ENGINEER/DESIGN/CHARGE		HEAT TREAT		
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DRAWN				APPD

HINDUSTAN AERONAUTICS LIMITED-NAERIK DIVISION, INDIA

NPS/

Soldier grade.	Chemical composition, %										Impurities, max.				
	Silver	Copper	Zinc	Tin	Manganese	Antimony	Phosphorus	Cadmium	Nickel	Lead	Lead	Iron	Slime	Total Impurities to be determined	
PSr 72	72.0±0.5	Rest	-	-	-	-	-	-	-	-	0.005	0.15	0.005	0.15	
PSr 71	71.0±0.5	Rest	-	-	-	-	1.0±0.2	-	-	-	0.005	0.15	0.005	0.15	
PSr 70	70.0±0.5	26.0±0.5	Rest	-	-	-	-	-	-	-	0.100	0.15	0.005	0.20	
PSrMO 65-27-5	68.0±0.5	Rest	-	5.0±0.5	-	-	-	-	-	-	0.005	0.15	0.005	0.15	
PSr 65	65.0±0.5	20.0±0.5	Rest	-	-	-	-	-	-	-	0.120	0.15	0.005	0.20	
PSr 62	62.0±0.5	28.0±1.0	-	Rest	-	-	-	-	-	-	0.005	0.15	0.005	0.15	
PSr 59	50.0±0.5	Rest	-	-	-	-	-	-	-	-	0.005	0.15	0.005	0.15	
PSr 50K ₂	50.0±0.5	16.0±1.0	16.0±1.0	-	-	-	Rest	-	-	-	0.120	0.15	0.005	0.20	
PSrK ₂ M 50-34-16	50.0±0.5	Rest	-	-	-	-	34.0±1.0	-	-	-	0.005	0.15	0.005	0.15	
PSr 48	45.0±0.5	30.0±0.5	Rest	-	-	-	-	-	-	-	0.100	0.15	0.005	0.20	
PSrMSK 45-15-16-24	45.0±0.5	Rest	16.0±1.0	-	-	-	24.0±1.0	-	-	-	0.150	0.15	0.005	0.20	
PSr 47	40.0±1.0	16.7±0.7	17.0±0.8	-	-	-	Rest	0.3±0.2	-	-	0.150	0.15	0.005	0.20	
PSr 37.6	37.5±0.5	Rest	5.5±0.5	-	8.2±2.3	-	-	-	-	-	0.150	0.20	0.010	0.30	
PSr 25	25.0±0.3	40.0±1.0	Rest	-	-	-	-	-	-	-	0.150	0.15	0.010	0.20	
PSr 25F	25.0±0.5	Rest	-	-	-	-	5.0±0.5	-	-	-	0.010	0.15	0.010	0.20	
PSr 15	15.0±0.5	Rest	-	-	-	-	4.8±0.3	-	-	-	0.200	0.15	0.010	0.30	
PSr 12M	12.0±0.3	52.0±1.0	Rest	-	-	-	-	-	-	-	0.150	0.15	0.010	0.20	
PSr 10	10.0±0.3	43.0±1.0	Rest	-	-	-	-	-	-	-	0.200	0.15	0.010	0.30	
PSr 10-90	10.0±0.5	-	-	Rest	-	-	-	-	-	-	0.200	0.20	0.015	0.40	
PSrCS ₂ 8 (VPr-6)	8.0±0.5	-	-	Rest	-	-	5.5±0.5	-	-	-	0.200	0.20	0.015	0.40	
PSrMO 5 (VPr-9)	5.0±0.5	2.0±0.5	-	-	-	-	1.0±0.2	-	-	-	-	0.15	0.010	0.15	
PSrCS 3.5-95	3.5±0.4	-	-	-	-	-	-	-	-	1.0±0.2	-	0.15	0.010	0.15	
PSr 3	3.0±0.3	-	-	-	-	-	-	-	-	Rest	0.200	0.15	0.010	0.30	
PSrC 3-97	3.0±0.3	-	-	Rest	-	-	-	-	-	-	-	0.15	0.010	0.15	
PSrCS 3-55	3.0±0.4	-	-	57.8±1.0	-	-	0.5±0.3	-	-	-	Rest	0.200	0.15	0.010	0.30
PSr 3L _D	3.0±0.5	-	1.0±0.5	-	-	-	-	-	-	-	-	-	-	-	

Contd...../-

Solder grade.	Chemical composition, %					Impurities, %								
	Silver	Copper	Zinc	Tin	Manganese	Antimony	Phosphorus	Cadmium	Nickel	Lead	Lead	Fe	Bismuth	Other
PSr 2.5	2.5±0.3	-	-	5.5±0.5	-	-	-	-	-	Rest	-	0.15	0.010	0.005
PSr 2.5 S	2.5±0.2	-	-	-	-	-	-	-	-	"	-	0.15	0.010	0.005
PSr 2	2.0±0.3	-	-	30.0±1.0	-	-	-	-	-	"	-	0.15	0.010	0.005
PSr OS 2-58	2.0±0.3	-	-	58.8±1.0	-	-	5.0±0.5	-	-	"	-	0.20	0.015	0.005
PSr 1.5	1.5±0.3	-	-	15.0±1.0	-	1.5±0.3	-	-	-	"	-	0.15	0.010	0.005
PSr 1	1.0±0.2	-	-	35.0±1.0	-	1.5±0.4	-	2.5±0.5	-	"	-	0.20	0.015	0.005

NOTE : In the symbols of solder grades the letters Su - Antimony; M - copper; P - phosphorus; O - tin in percentages.

2. Content of zinc in alloys PSr 72 and PS

indicates : P - solder, Sr - silver, Kp - cadmium; TS - zinc; S - lead. The figure after the letter indicates content of silver in % should not be more than 0.007%.

Use of silver solders.

Grades of solder.

Uses.

PSR 72; PSR 71; PSR 62; PSR50K1;
 PSR 59; PSR 45; PSR 40; PSR 37.5;
 PSR 26; PSR 15; PSR 10; PSR 2.5

Finishing and soldering of copper
 brass and copper-nickel alloys;
 nickel, kovar, german silver,
 brass and bronze.

PSR 72

Soldering of non-nickel alloy
 with silver plated steel parts,
 soldering of steel with copper,
 nickel, copper and copper -
 nickel alloys.

PSR 72; PSR 62
 PSR 72; PSR 52; PSR 40; PSR 15;
 PSR 12K.

Soldering of copper with nickel
 plated tungsten.

* PSR MC 68-27-5; PSR 70; PSR 50

Soldering of titanium and
 titanium alloys with stainless
 steel.

PSR 37.5

Soldering of copper and copper
 alloys with heat resistant alloys
 and stainless steels.

PSR 40

Soldering of copper and brass
 with kovar, nickel, stainless
 steels and heat resistant alloys;
 soldering of lead-tin bronze.

PSR 10-90; PSR052 8; PSRMC 6;
 PSR05 3-5-88; PSR0 8-87; PSR05 4
 3-52; PSR02 2-58; PSR 2; PSR 1.5

Soldering and finishing of
 copper, nickel, copper and copper-
 nickel alloys with silver plated
 ceramic and soldering of silver
 plated parts.

PSR 3; PSR2; PSR 1.5

Soldering of copper and nickel
 with glass enamel and ceramic.

PSR 72; PSR 70; PSR 65; PSR 45;
 PSR 25; PSR 15; PSR 2

Soldering and finishing of
 jewelry articles.

Contd.../-

Grades of soldier.

Uses.

PSR 71; PSR 267; PSR 15

Self-fluxing solders for soldering the copper with copper copper with copper and bronze with bronze.

PSR 304

Soldering of copper, copper alloys and steels on freshly-applied copper galvanic coating of not less than 10 mil.

PSMO 68-27-5; PSKDM 50-34-16;

PSHMD 45-15-15-24; PSR 3; PSR 2.5

Soldering and tinning of non-ferrous metals and steels. Soldering and tinning of silver parts.

PSR 1

APPENDIX - 2 FOR COST 19708-74
REFERENCES:

DATA FOR MELTING POINT, DENSITY AND RESISTIVITY OF SILVER POINTS

Grade of solder	Density, g/cc	Melting point, °C	RESISTIVITY	
			TEMPERATURE	W-L CM
PST 72	10.0	779	779	2.1
PST 71	9.8	785	848	4.9
PST 70	9.8	770	716	4.1
PSMO 68-27-5	9.3	765	655	14.0
PST 56	9.45	722	595	5.8
PST 62	9.6	723	650	25.5
PST 50	9.3	860	779	2.5
PST 50KD	9.25	640	625	7.2
PSMOK/45-15-16-24	9.4	615	615	6.5
PSMOK 50-34-15	9.6	685	630	5.8
PST 46	9.1	730	666	10.0
PST 40	9.25	610	590	7.0
PST 37.5	8.9	810	725	37.2
PST 25	8.7	775	740	7.7
PST 25R	8.3	725	645	18.6
PST 15	8.5	810	640	20.7
PST 12M	8.3	830	793	7.4
PST 10	8.4	850	822	7.1
PSMO 10-90	7.6	280	221	12.9
PSMO 8 (VP1-6)	7.4	250	235	29.7
PSMO 5 (VP1-2)	7.4	240	215	15.3
PSMOC 3.5-95	7.4	224	220	12.3
PST 3	11.4	315	304	20.4
PSMO 3-97	7.4	225	221	18.5
PSMOS 3-88	5.6	190	150	14.5
PST 3KD	8.7	342	314	8.0
PST 2.6	11.0	300	295	21.4
PST 2.5S	11.3	306	304	20.7
PST 2	9.5	238	235	16.7
PSMOS 2-55	8.5	183	183	14.1
PST 1.5	10.4	280	273	19.1
PST 1	9.4	235	225	26.0

