



SURFACE VEHICLE STANDARD	J473™	AUG2018
	Issued 1911-06 Revised 1962-06 Stabilized 2018-08	
	Superseding J473 JUN1962	
Solders		

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1. **Scope**—The choice of the type and grade of solder for any specific purpose will depend on the materials to be joined and the method of applying. Those with higher amounts of tin usually wet and bond more readily and have a narrower semi-molten range than lower amounts of tin.

For strictly economic reasons, it is recommended that the grade of solder metal be selected that contains least amount of tin required to give suitable flowing and adhesive qualities for application.

All the lead-tin solders, with or without antimony, are usually suitable for joining steel and copper base alloys. For galvanized steel or zinc, only Class A solders should be used. Class B solders, containing antimony usually as a substitute for some of the tin or to increase strength and hardness of the filler metal, form intermetallic antimony-zinc compounds, causing the joint to become embrittled. Lead-tin solders are not recommended for joining aluminum, magnesium, or stainless steel.

Permissible impurity levels are shown:

MAX IMPURITIES, %			
Bismuth.....	0.25	Zinc.....	0.005
Copper.....	0.08	Aluminum.....	0.005
Iron.....	0.02	Other elements, total.....	0.08

In dipping solders, 0.5% max copper is permissible because of pickup in bath.

Compositions, temperatures, and similar specifications of these SAE solders are shown in Table 1.