

the activity change with increasing electron/atom ratio can give valuable clues to the reaction mechanism and can assist the selection of catalysts of optimum activity for particular reactions. For example, binary alloys of metals having activities possibly superior to those of pure metals may be selected on this basis.

### References

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## High Purity Palladium Brazing Alloys

### MULTI-STAGE JOINING IN THE MANUFACTURE OF THERMIONIC VALVES

The manufacture of special purpose thermionic valves operating at relatively high temperatures and under conditions of high vacuum necessitates the use of brazing alloys specifically suited to these requirements. Such alloys must be free from impurities that might hinder wetting and flow of the molten brazing material, must have low vapour pressures at high service temperatures, high melting points and, where needed, good mechanical properties at high temperatures.

While the well known silver-copper eutectic alloy melting at 778°C can satisfy a good many of these requirements when produced under careful conditions, alloys containing palladium show distinct advantages in terms of both vapour pressure requirements and mechanical properties, while also giving improved wetting characteristics on molybdenum, tungsten and nickel alloys. In addition they offer reduced risk of failure of the joints due to intergranular penetration.

Pallabraz High Purity Brazing Alloys		
Alloy	Composition	Melting range °C
Pallabraz 810	5 Pd-Ag Cu	807-810
Pallabraz 840	10 Pd-Ag Cu	830-840
Pallabraz 850	10 Pd-Ag Cu	824-850
Pallabraz 880	15 Pd-Ag Cu	856-880
Pallabraz 900	20 Pd-Ag Cu	876-900
Pallabraz 950	25 Pd-Ag Cu	901-950
Pallabraz 1010	5 Pd-Ag	970-1010
Pallabraz 1090	18 Pd-Cu	1080-1090
Pallabraz 1225	30 Pd-Ag	1150-1225
Pallabraz 1237	60 Pd-Ni	1237

The Pallabraz range of high purity palladium brazing alloys developed by Johnson Matthey was described in this journal some years ago by M. H. Sloboda (*Platinum Metals Rev.*, 1963, 7, 8), but a revised Data Sheet just published by the company brings up to date the detailed properties and uses of these alloys. As will be seen from the table, a range of brazing materials is available to provide melting points spaced at convenient intervals so that complex assemblies can be fabricated by the step-by-step technique.