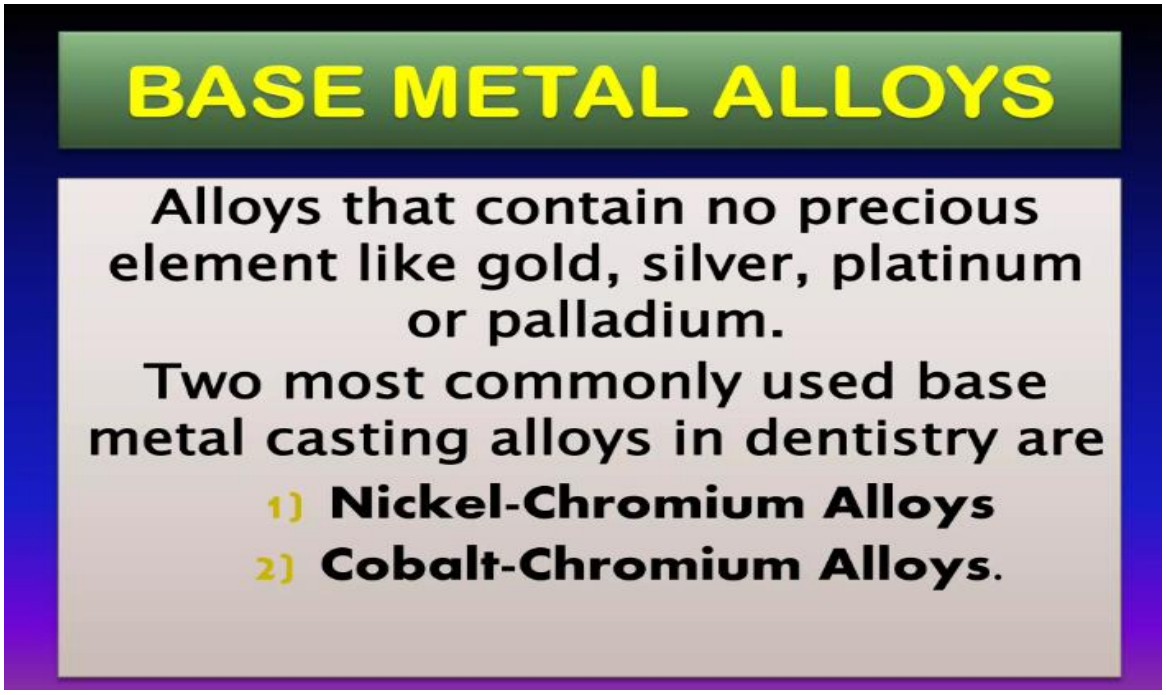
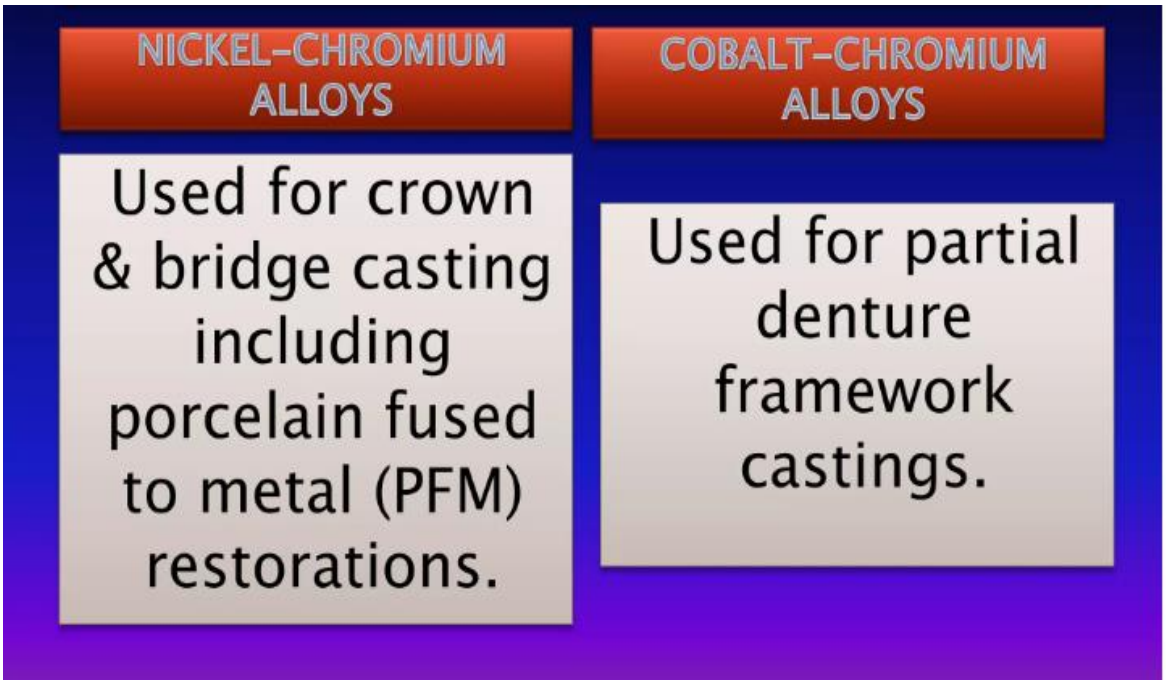
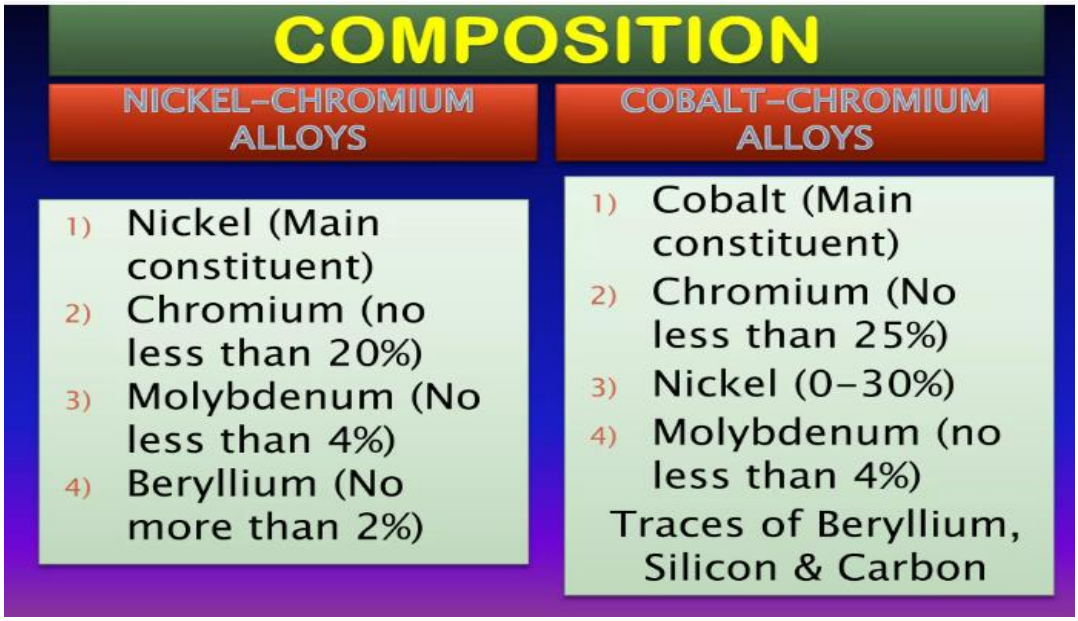
Base metal alloy types





Properties of base metal alloy:

1. They are very hard material; this makes polishing difficult and the polished
2. Fine margins are less likely to be lost.
3. Have good corrosion resistance.
4. Fusion temperature is about (1200 Cº – 1500 Cº) which is higher than casting gold alloy.



FUNCTION OF VARIOUS ALLOYING ELEMENTS

- Chromium is responsible for the tarnish and corrosion resistance of these alloys.
- When the chromium content of an alloy is higher than 30%, the alloy is more difficult to cast. Therefore, cast base-metal dental alloys should not contain more than 28% or 29% chromium.
- Cobalt increases the alloy's elastic modulus, strength, and hardness more than nickel.

- ❖Carbon: One of the most effective ways of increasing the hardness of cobalt-based alloys is by increasing their carbon content.
- ❖Aluminum: in Ni-Cr alloy, it forms a compound of Ni and Al (Ni3 Al). This compound increases the ultimate tensile strength and yield strength of the alloy. The addition of 1% to 2% beryllium to Ni-base alloys lowers the fusion range by about 100C°. Such concentration may adversely affect ductility.
- ❖Silicon and Manganese are added to increase the alloy's fluidity and cast ability.
- ❖Nitrogen contributes to the brittle quality of the cast alloy.
- ❖Molybdenum The presence of 3% to 6% contributes to the strength of the alloys. The addition of beryllium to base metal alloys improves its cast ability by lowering the alloy's melting temperature and surface tension.

THANK YOU