

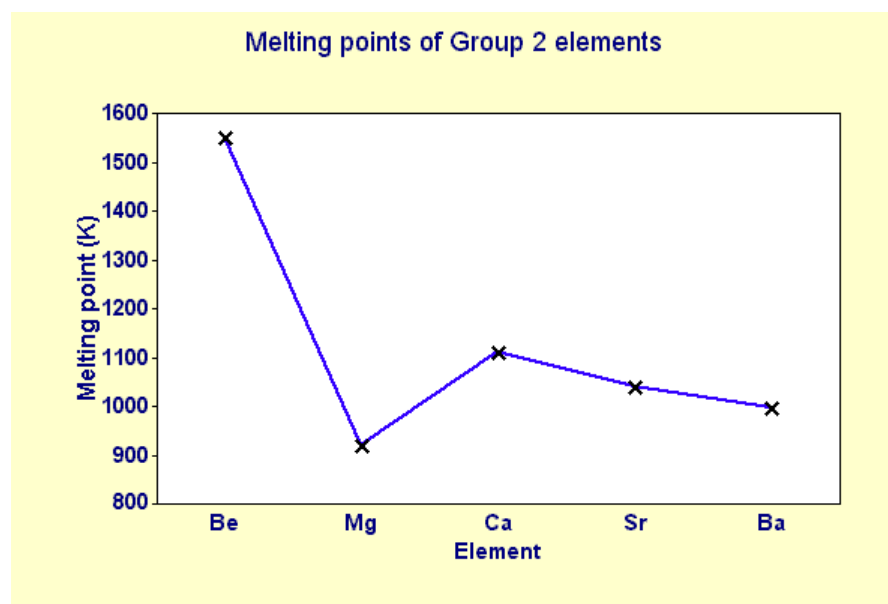
## Trend in melting points of Group 2 elements

The melting point generally decreases going down Group 2.

### Table of physical data

Element	Proton number	Symbol	Melting point (K)
beryllium	4	Be	1551
magnesium	12	Mg	922
calcium	20	Ca	1112
strontium	38	Sr	1042
barium	56	Ba	998

### Graph of physical data



### Explanation of this trend

The Group 2 elements are all metals with metallic bonding, so you expect their melting points to be high. In metallic bonding, metal cations in a metal lattice are attracted to delocalised electrons.

Going down Group 2:

- the number of delocalised electrons remains the same ...
- the charge on each metal cation stays the same at 2+, but ...
- the ionic radius increases ...
- so the attraction between the delocalised electrons and the metal cations decreases.

Notice that, although in general the melting point decreases going down the group, the melting point for magnesium is anomalously low. One possible explanation is that beryllium and magnesium have different metallic structures from the other elements in the group:

- beryllium and magnesium have a hexagonal close-packed structure;
- calcium and strontium have a face-centred cubic structure; and
- barium has a body-centred cubic structure.