**Answer on Question #53179 – Chemistry – General chemistry**

**Question:**

Explain the shape of $BeF_2$ molecule based on the hybridization concept and VSEPR theory

**Answer:**

$BeF_2$ has a linear geometry. According to the hybridization concept two Be-F bonds are formed from pair s (Be)-p (F) and p (Be)-p (F):

Be $1s^2 2s^1 2p^1$ and 2 F $1s^2 2s^2 2p^5$

Despite the different nature of s and p orbitals new formed sp-orbitals are equivalent. This is called 'sp'-hybridization state. Based on the VSERP theory the bonding electron pairs located between Be and F atoms (so-called sigma bonds) has a minimum repulsion when the F-Be-F angle is $180^0$.

The Lewis structure for $BeF_2$:

$$: \overset{..}{\underset{..}{F}} \text{——} Be \text{——} \overset{..}{\underset{..}{F}} :$$