

## Supporting Information

### Theoretical study on lithium storage performance of V-doped $\text{Ti}_2\text{CO}_2$ MXene

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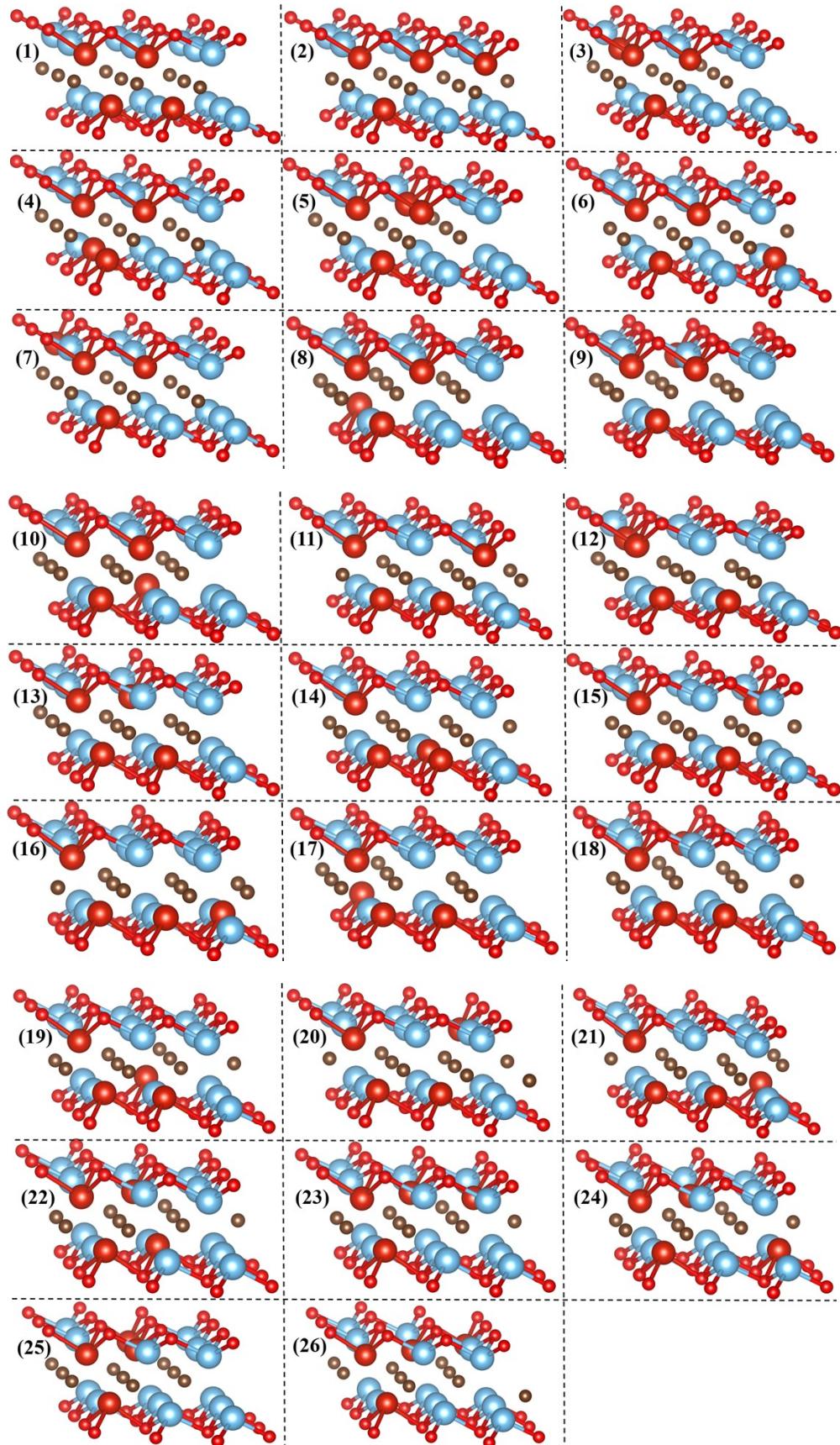


Fig. S1 26 predicted structures of  $\text{TiVCO}_2$

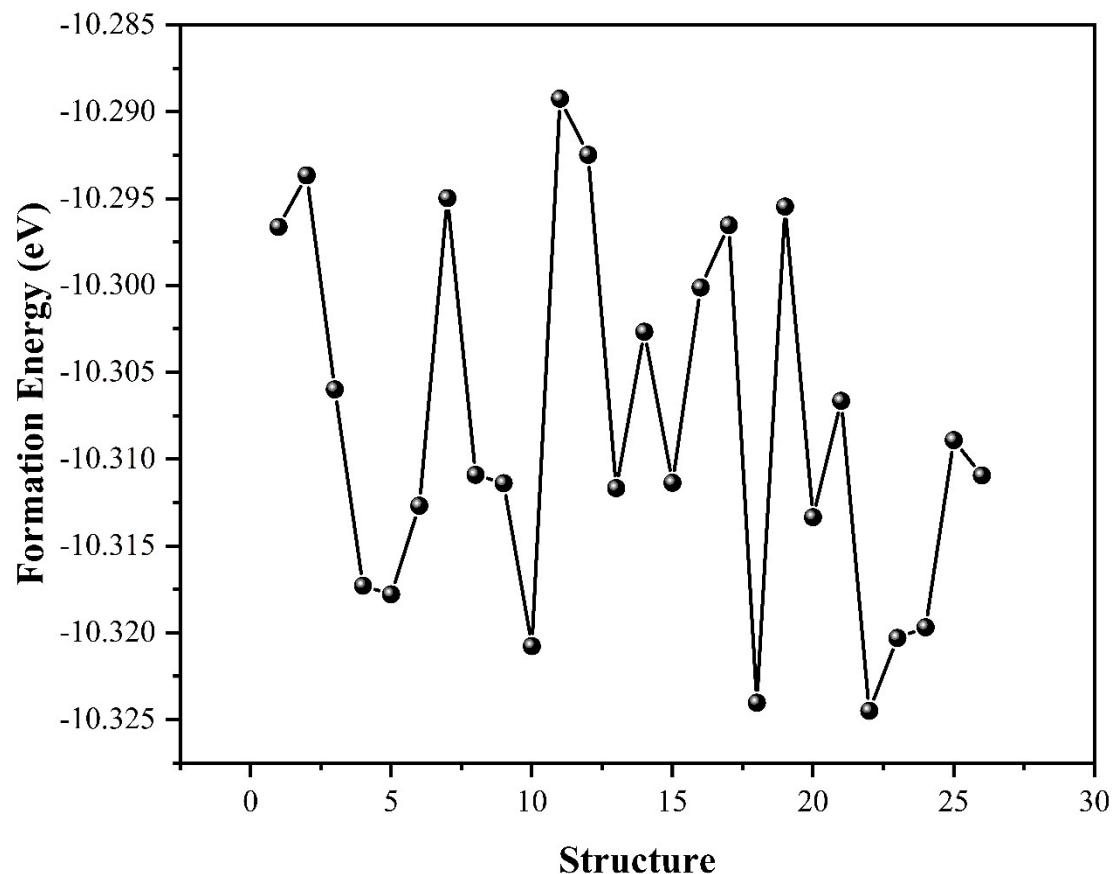


Fig. S2 Formation energy of different predicted structures

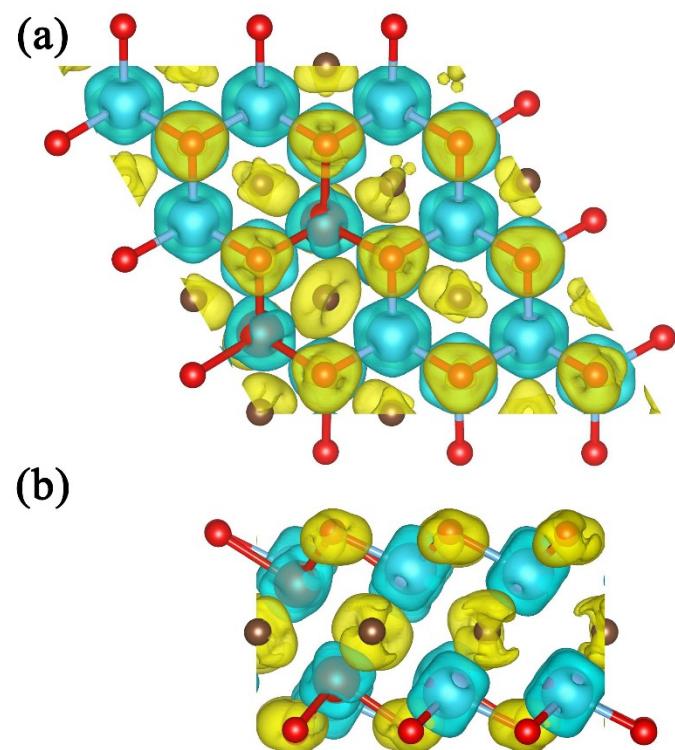


Fig. S3 Top (a) and side (a) view of  $\text{TiVCO}_2$  charge density difference.