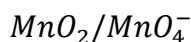
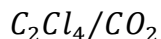


Methodology to balance redox reactions

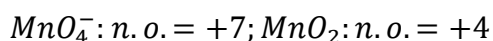
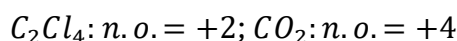
ENV 504

PCE oxidation using permanganate is used as an example

1) Identify the two redox couples involved (Red/Ox)

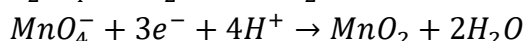
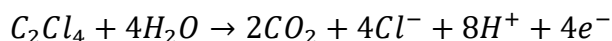


2) (not necessary) Calculate oxidation numbers

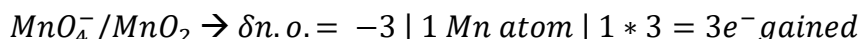
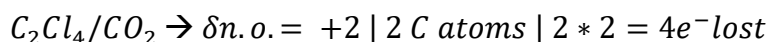


3) Balance the half reactions following the order:

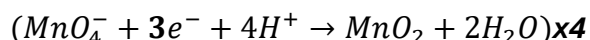
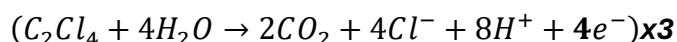
1. Balance atoms other than oxygen and hydrogen
2. Balance oxygen atoms by adding water
3. Balance hydrogen atoms by adding protons
4. Balance the charges by adding electrons



4) (not necessary) Check that change of n.o. match e- lost/gained



5) Equalize electron transfer between half reactions



6) Sum up the half reactions together

