

Answer on question #60776 – Chemistry – Physical Chemistry

**Question:**

I have checked wikipedia it says the IUPAC name is Sodium pentacyanonitrosylferrate(II). But according to me its Sodium pentacyanonitrosylferrate(III).

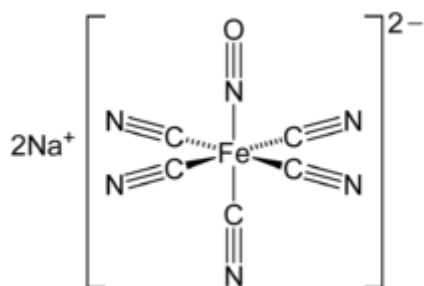


Oxidation number calculation  
 $-2 = x + (-5) + 0 \Rightarrow x = 5 - 2 = 3$   
So the oxidation number of Fe should be 3.  
Shouldn't the oxidation number be 3? What is the correct IUPAC name?

**Solution:**

Correct name for sodium nitroprusside – Sodium pentacyanonitrosylferrate(II)

Structure of salt:



Oxidation state of Fe is +2 because the oxidation state of NO is not 0 but +1.

NO<sup>+</sup> – The nitrosonium ion (see <https://en.wikipedia.org/wiki/Nitrosonium>)

This is not classical ion.

So:

$$-2 = 5*(-1) + 1 + 2$$

**Answer:** Sodium pentacyanonitrosylferrate(II)