

Answer on question #60747 – Chemistry – General Chemistry

**Question:**

What is the correct IUPAC name of sodium nitroprusside?

This question already has an answer here:

Back bonding in coordination complex 1 answer I have checked wikipedia it says the IUPAC name is Sodium pentacyanonitrosylferrate(II). But according to me its Sodium pentacyanonitrosylferrate(III).  $\text{Na}_2[\text{Fe}(\text{CN})_5\text{NO}]$

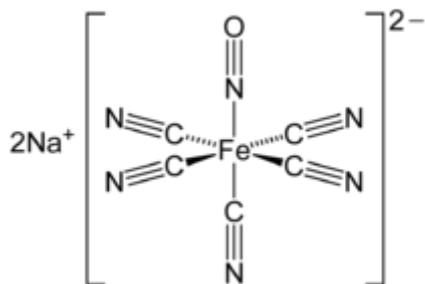
Oxidation	number	calculation
-2 = x + (-5) + 0 => x = 5 - 2 = 3		

So the oxidation number of Fe should be 3. Shouldn't the oxidation number be 3? What is the correct IUPAC name? Please explain.

**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.

$\text{NO}^+$  – 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)