

Fykays OxyComp-D



Instant Measurement of Oxygen PPM and Temperature in Molten Steel

Fykays Engineering Pvt Ltd – an all-woman owned and run MSME - is the First Indian Company to develop this system.



Fykays ENGINEERING PRIVATE LTD.
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OxyComp- D



Instant measurement of Oxygen PPM and Temperature in Molten Steel

Fykays OxyComp – D enables Steel Melt shops to know within 10 seconds the dissolved Oxygen PPM and Temperature of the bath with a single dip.

- The instrument derives its twin signals of Oxygen Cell Voltage and Bath temperature from a two-in-one probe – Fykays ThermOxy Tip.
- Instantly calculates Oxygen PPM and temperature and
- Presents the data on a digital Large Display for visibility over large distance.

By virtue of fast sampling techniques (<200mS), a plateau detection method, latching and storing of data, the Fykays OxyComp – D retains the transient output signals from the expendable probe (max 10 – 15 seconds) and calculates the Oxygen in the molten steel.

The instrument is totally operator independent and instantly calculates and displays the bath temperature and Oxygen PPM and in certain grades of Steel also displays - % Carbon and % Aluminum.

Features:

- Different versions:
 - High PPM – for use during the Oxidizing stage – in Induction furnaces
 - Low PPM – for use during the reducing stage – in the LRF.
- High accuracy:
 - Temperature: +-1-degree Celsius
 - Oxygen: 1 PPM in reducing stage (Low PPM), 4 PPM Oxygen in oxidizing stage (High PPM)
 - Carbon: 0.01 % for Carbon
- Data transmission to cloud and online storage
- Rugged Construction; easy to install
- Audio visual signaling system – which generates functional signals like READY, MIP, OVER and ERROR

Delivery period: 8 weeks

Send your enquiries to systems@fykays.com

Benefits of using Fykays OxyComp - D

- ✓ Know O2 PPM and Temperature within 10 seconds!
- ✓ Control the amount of de-oxidants used
- ✓ Increase recovery of de-oxidants in melt
- ✓ Reduce holding time
- ✓ Instant Carbon determination in mild steels*
- ✓ Instant Aluminum determination in LCAK steels**
- ✓ Can be used with simple thermocouple tips also
- ✓ Payback period as low as 1 month

* In melts with Oxygen PPM > 50 and Carbon % <0.3

** in melts with PPM <50

(1)



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OxyComp- D



Sambhv
Sponge Power Pvt. Ltd.

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Ms. Kripa Kandade
Managing Director
Fykays Engineering Pvt Ltd
Nerul, Navi Mumbai

Subject: Fykays OxyComp – D performance

Date: 16th December 2022

Dear Madam,

We have a Slab Casting plant where we manufacture special grades of steels. Our grades of steel require a tight control on the O₂ level – both, in the Oxidation stage (Induction furnace) as well as in the Refining stage (LRF).

5 months ago, we procured 2 of your Fykays OxyComp D – for instant measurement of Oxygen PPM in molten steel.

We are using one each for in the Induction furnace and in the LRF. We have compared the results against LECO analysis – and are happy to note the consistent accuracy of the O₂ PPM readings.

The benefits to us by using your system:

1. We can accurately maintain the quality of our steel
2. We reduce process time – as we get instant reading of the Oxygen PPM
3. We have reduced rework
4. The repeatability and the accuracy are commendable.

I appreciate you and your Company for developing this system and as I understand it, you are the first Indian Company to do so.

We would recommend your system to other steel makers looking to maintain the quality of their steel and to reduce process time.

Regards

Amit Chakraborty

Technical Advisor to the Managing Director
Sambhv Sponge Power Pvt Ltd.



Fykays OxyComp D – Demo Data – Mar'22 to Jan'23

Plant 1: Mild Steel (TMT) Plant in Jalna, Maharashtra

Date: 9th March 2022

Furnace: 20 Tons Induction Furnace

<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>	<u>Carbon Percent</u>	<u>T/c temp</u>	<u>Spectro Carbon</u>
13:20	1595	67	0.21	1596	0.22
15:33	1535	59	0.19	1536	0.18
17:45	1628	62	0.20	1613	0.21

Date: 10th March 2022

Furnace: 20 Tons Induction Furnace

<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>	<u>Carbon Percent</u>	<u>T/c temp</u>	<u>Spectro Carbon</u>
09:59	1577	61	0.19	1578	0.18
10:08	1642	71	0.18	1640	0.19
12:07	1584	41	0.23	1580	0.22
15:46	1629	63	0.24	1630	0.25
17:35	1615	54	0.27	1616	0.28

Plant 2: LCAK Slab Plant in Raipur

Date: 26th June 2022

Furnace number: Induction Furnace Number 5

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>	<u>T/c temp</u>	<u>Notes</u>
Scrap Iron – 4 tons added Sponge 11 tons added	16:28	1642	494	1642	
Aluminium – 14 kg added Silico-Manganese – 20kg added Ferro-manganese – 20 kg added	16:41	1671	119	1669	Post this reading, melt poured into ladle
Silico-Manganese – 91kg added – in ladle	16:44	1648	123	1646	Reading was taken before any stirring – immediately after pouring

Date: 27th June 2022

Furnace number: Induction Furnace Number 4

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>	<u>T/c temp</u>	<u>Notes</u>
Scrap Iron – 4 tons added Sponge 12 tons added	13:24	1602	394	1585	Melt Start @ 09:50



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Rail – 4 tons added					
Rail – 350kg added @13:27					Post this reading, melt poured into ladle
Aluminium – 14 kg added @13:33					
Silico-Manganese – 40kg added @13:35	13:38	1672	93	1669	
Ferro-manganese – 20 kg added @13:34					
Silico-Manganese – 73kg added – in ladle	13:41	1640	69	1650	
Pouring Time – 13:40					

Plant 3: Alloy Steel Plant in Ludhiana

Date: 19th January 2023

Furnace number: 12 Ton Induction Furnace

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>
16 Tons Scrap	21:38	1607	139
6 kg Aluminium	21:41	1647	24
5 kg Manganese	21:43	1670	30

Date: 19th January 2023

Furnace number: 12 tons Induction Furnace

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>
15.5 tons scrap	23:35	1655	96
6 kg Aluminium	23:37	1683	26
16 kg High Carbon Ferro Manganese 20 kg Silico Manganese	23:39	1639	95

Plant 4: Stainless-Steel Plant near Kanpur

Date: 17th January 2023

Furnace number: AOD 1 – 50 Tons

Steel Grade: SS304

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>
39.5 tons liquid metal 3500 kg MS Scrap 800 kg Lime 2 tons dolomite 1.2 tons nickel 1.2 tons high nickel scrap 1000 kg High carbon Ferro-Chrome	12:24	1685	82
2 tons lime 2.2 tons Si Metal Total time in AOD: 1:30	13:18	1714	46



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Date: 17th January 2023

Furnace number: AOD 2 – 25 Tons

Steel Grade: 200 Series SS

<u>Melt details</u>	<u>Time</u>	<u>TO Temp</u>	<u>O2 PPM</u>
Melt 1 – At pouring	17:58	1584	21
Melt 2 – Half way point	19:20	1718	114
Melt 2 – At pouring	20:00	1599	32