

Subject:

APPLICATION TEST
DROSS REMOVAL FLUX SCOREX GR 800
TECHNICAL PRIMARY ALUMINUM
at:BIG PRIMARY AL PRODUCER
KRASNOYARSK – RUSSIAN FEDERATION
15th october 2013



Sommario

1 GENERAL REVIEW.....	3
2 FURNACE TECHNICAL DATA.....	3
3 ALLOY DATA.....	3
4 BATCH DATA AND STOCKAGE.....	3
5 Testing procedure.....	3
6 1% of flux: 30 kg	4
7 0.8 % of flux: 24 kg.....	4
8 0.6 % of flux 18 kg	4
9 further TEST.....	5
10 0.3 % SCORIFICATE 9 KG.....	5
11 NOTE.....	6

GENERAL REVIEW

Validation test for Jodovit flux for dross removal in furnace Scorex GR 800.

FURNACE TECHNICAL DATA

- TYPE: Smelting reverberatory furnace
- FURNACE CAPACITY: 30.000 Kg

ALLOY DATA

Primary technic aluminum alloy (Grade A0, A5, A5E, A6, A7, A7E, A7Θ, A7EC, A8, A85, AB97), chemical composition unknown.

We suppose primary technica alluminium with the following composition

Element	% max
Si	0.10
Fe	0.20
Al	99.70% min

- MELTED BATH TEMPERATURE: 730 °C (as for onboard equipment).

BATCH DATA AND STOCKAGE

For testing we used 4 bags with 25 kg each of dross removal flux batch number 13071914. The material has been satisfactory stocked inside the production facilities.

TESTING PROCEDURE

Scheduled 3 tests according to the aluminum quantity inside the furnace (about 30.000 Kg), at the following percentage.

- ❖ 1% of the alloy weight (about 30 kg of flux)
- ❖ 0.8 % of the alloy weight (about 24 kg of flux)
- ❖ 0.6 % of the alloy weight (about 18 kg of flux)

⌘ **1% OF FLUX: 30 KG**

30 kg of dross removing flux has been applied in the furnace in equal quantity in the three furnace portion in front of every working gate

Immediately after application we noticed a good reaction with quite immediate priming (sparks on the bath)

Every portion has been mixed about three minutes in order to start the reaction with the dross.

After 5 minutes after reaction the slag has been removed, as result the bat was very clean.

We noticed a continuous reaction of the flux on the dross after its removal and stocking in the dross box container (flux that was going to prime) with a continuous development of heat and smoke. Reaction still going after 2 hours since the end of the dross removal.

📦 **0.8 % OF FLUX: 24 KG**

24 kg of dross removing flux has been applied in the furnace in equal quantity in the three furnace portion in front of every working gate

Immediately after application we noticed a good reaction with quite immediate priming (sparks on the bath)

Every portion has been mixed about three minutes in order to start the reaction with the dross.

After 5 minutes after reaction the slag has been removed, as result the bat was very clean.

We noticed a continuous reaction of the flux on the dross after its removal and stocking in the dross box container (flux that was going to prime) with a continuous development of heat and smoke. Reaction still going after 2 hours since the end of the dross removal.

📦 **0.6 % OF FLUX 18 KG**

18 kg of dross removing flux has been applied in the furnace in equal quantity in the three furnace portion in front of every working gate

Immediately after application we noticed a good reaction with quite immediate priming (sparks on the bath)

Every portion has been mixed about three minutes in order to start the reaction with the dross.

After 5 minutes after reaction the slag has been removed, as result the bat was very clean.

We noticed a continuous reaction of the flux on the dross after its removal and stocking in the dross box container (flux that was going to prime) with a continuous development of heat and smoke. Reaction still going after 2 hours since the end of the dross removal.

At that time the workers at the furnace put some powder flux (local producer) over the hot dross in attempt to extinguish the dross itself but with opposite result feeding the exothermic reaction and making many fumes (smoke) on the environment and a hot mass on the dross that went on burning.

FURTHER TEST

As result of the test and because of the doubts and worries of the manager who was convinced that there is too much flux reaction even after dross removal we decided to make a further test also because we were convinced that the continuous burning reaction was due only to the excessive quantity of flux that did not end its reaction on the molten metal bath and continued on the dross outside the furnace.

The further test has been made as follows:

- ❖ 0.3 % of dross removal flux
- ❖ mixing for reaction with dross
- ❖ waiting time to remove dross 15 minutes (waiting time as when using the powder flux of the local producer)
- ❖ dross removal
- ❖ check of dross extinguishing

0.3 % SCORIFICATE 9 KG

9 kg of dross removing flux has been applied in the furnace in equal quantity in the three furnace portion in front of every working gate

Immediately after application we noticed a good reaction with quite immediate priming (sparks on the bath)

Every portion has been mixed about three minutes in order to start the reaction with the dross.

After a 15 minutes wait the dross has been removed. The bath is clean and there is no burning in the molten metal. We notice a significant improvement in the dross extinguishing which behaviour has been the same as for using the local producer's powder flux.



NOTE

As result fo the tests we notice that the usage of granular flux brings a benefit of the quantity used reducing from the starting ratio of 0.8 % to 0.3 %, in weight from 24 kg of powder flux from local producer to 8 kg of Scorex Gr 800.

The tests are not supported by pictures because for privacy reason and company legislation we could not take any visual documentation.

We wait to receive the chemicals analisys of the samples of the aluminum taken before and after flux application in order to check any chemical change in the alloy.

According to our experience the dross removing flux Scorex GR 800 does not release any elements that can change the chemical composition of the alloy, we suggest the customer to make another test reducing the quantity to be used to 6 kg of flux.

Lonate Pozzolo, october 2013 the 21th

JODOVIT srl

Dip. Eng Nicola Giardinelli - Metallurgist – Technical support

Mr. Lorenzo Stoppani – Foreign Sales Manager

Mr. Fabio Dell'Acqua – General Manager