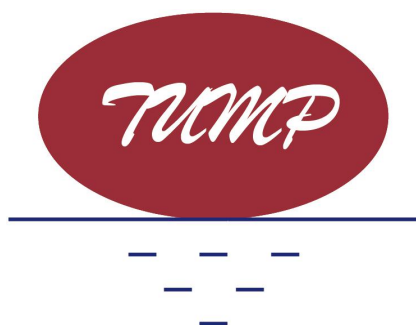


Haixi Tsingda-Jiuhong New Inorganic Materials Co., Ltd



Efficient Purification

Environmental-friendly Process

Improving Quality

Reducing Cost



About Us

Haixi Tsingda-Jiuhong New Inorganic Materials Co., Ltd was established in Delingha city, Qinghai Province at Jan. 2017. The registered capital of our company was 20 million RMB. We engage in the research and development, production and sales of purification materials for liquid metal (especially aluminium) treatment. Our expertise is developed based on long-term fundamental research of Tsinghua University. In Nov. 2017, we started to test and compare our products with other ones in the market in representative Chinese aluminum plants. After obtaining universal recognition, our company started running officially in Jan. 2019.

Our company is equipped with modern production facilities as well as complete set of analytic apparatus. We develop and produce a variety of inorganic purification materials for liquid metal (especially aluminium) treatment. Our product types cover refining agents dressing agent and covering agent. In both domestic and foreign markets, our product distinguishes itself with its excellent performance. During production, we consistently implement environmental-friendly guidelines and stick to zero-pollution discipline. We have been approved in the environmental protection assessment of Qinghai Province. We have also been granted an ISO9001 quality management system certification and an ISO14001 environmental management system certification.

Our company's R&D team has accumulated rich experience and mature technology in melt quality control and evaluation through numerous detailed and rigorous investigations and experiments. Our unique production process reaches the level of the top international company. We offer customized purification materials for aluminium melt treatment in order to meet requirements of diverse types and characteristics of aluminum products, granularity and emission. We feature in addressing a series of production-scale problems stemming from micro-scale and engineer corresponding technological solutions.



Products Categories

Name	Version	Feature	Applicability
Refining fluxes	PUSGMK-01	Granular, fluoride free, sodium free	For all aluminum alloys
	PUSGMK-02	Granular, fluoride free, sodium free	
	PUSGMK-03	Granular, fluoride free, sodium free	
	*PUSGMN-01	Granular, fluoride free, sodium contained	* For all aluminum alloys
	*PUSGMN-02	Granular, fluoride free, sodium contained	
Drossing fluxes	DRMPMKF-01	powder, sodium free	For all aluminum alloys
	*DRMPMN-01	Powder, sodium contained	* For all aluminum alloys
	*DRMPNKF-01	Powder, sodium contained	* For all aluminum alloys
Covering fluxes	COMPMK-01	powder, Sodium free	For all aluminum alloys
	*COMPMN-01	Powder, sodium contained	* For all aluminum alloys
	*COMPNK-01	Powder, sodium contained	* For all aluminum alloys

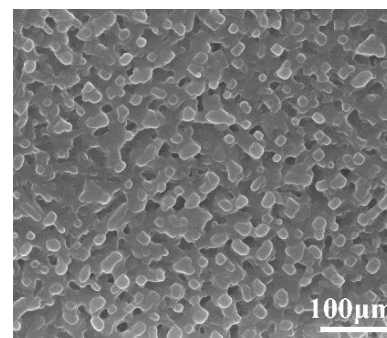
* Although it is sodium containing flux, the form of sodium is completely different from other product in the market. Our research and industrial-scale results have proved that there would be no "sodium embrittlement" when application of our refining flux. Instead our refining agent can reduce the sodium content in the melt. **This type of refining flux can be used in all aluminum alloys.**



Granulated Flux



Powder Flux



Uniform Morphology of
Flux in Micro Scale (SEM)

For different fabrication products, it is always important to use proper melt purification material and technique. A full communication with our technician is recommended before ordering.



Aluminum Refining Flux – PUSGMK-01

This product is produced by melting mixture of various kinds of inorganic salts at high temperature, melt crystallization and solid granulation. It is used to remove non-metallic inclusions represented by oxides, reduce hydrogen content, and remove unnecessary alkali and alkaline earth metals in aluminum and aluminum alloy melt.

USE INSTRUCTIONSS

- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best) .
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume and shape of scrap).
- After aluminum melt reaches the refining temperature, purge the purification agent granule into the bottom of melt bath with help of inert gas through lance or impeller. Stir the melt thoroughly (best stirring way: electromagnetic stirring/permanent stirring) during purging. After purging continue to stir the melt bath for 5-15 min and then set it at rest for 15 -30 min (time period should be optimized depending on depth of the bath). After dwelling of melt, skim the dross with help of specific skimming tools. Before purging, it is recommended to use a tool to remove the viscous slag on the surface of the molten aluminum. If the total amount of 0.2-0.5 wt.% of refining flux can be purged into the melt in two to three times, the refining effect will be best.

FEATURES

- Environment friendly refining flux without dust.
- Uniform composition and stable refining effect.
- Specially designed grain size for injection without blocking the injector.
- Fluoride free and has less corrosiveness to furnace lining.
- Sodium free.
- Especially suitable for refining in holding furnace and can also be used in melting furnace.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Refining Flux – PUSGMK-02

This product is produced by melting mixture of various kinds of inorganic salts at high temperature, melt crystallization and solid granulation. It is used to remove non-metallic inclusions represented by oxides, reduce hydrogen content, and remove unnecessary alkali and alkaline earth metals in aluminum and aluminum alloy melt.

USE INSTRUCTIONS

- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best) .
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume and shape of scrap).
- After aluminum melt reaches the refining temperature, purge the purification agent granule into the bottom of melt bath with help of inert gas through lance or impeller. Stir the melt thoroughly (best stirring way: electromagnetic stirring/permanent stirring) during purging. After purging continue to stir the melt bath for 5-15 min and then set it at rest for 15 -30 min (time period should be optimized depending on depth of the bath). After dwelling of melt, skim the dross with help of specific skimming tools. Before purging, it is recommended to use a tool to remove the viscous slag on the surface of the molten aluminum. If the total amount of 0.2-0.5 wt.% of refining flux can be purged into the melt in two to three times, the refining effect will be best.

FEATURES

- Environment friendly refining flux without dust.
- Uniform composition and stable refining effect.
- Specially designed grain size for injection without blocking the injector.
- Fluoride free and has less corrosiveness to furnace lining.
- Sodium free.
- Especially suitable for refining in holding furnace and can also be used in melting furnace.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Refining Flux – PUSGMK-03

This product is produced by melting mixture of various kinds of inorganic salts at high temperature, melt crystallization and solid granulation. It is used to remove non-metallic inclusions represented by oxides, reduce hydrogen content, and remove unnecessary alkali and alkaline earth metals in aluminum and aluminum alloy melt.

USE INSTRUCTIONS

- For all aluminum alloys.
- Recommended operation temperature $>720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best) .
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume and shape of scrap).
- After aluminum melt reaches the refining temperature, purge the purification agent granule into the bottom of melt bath with help of inert gas through lance or impeller. Stir the melt thoroughly (best stirring way: electromagnetic stirring/permanent stirring) during purging. After purging continue to stir the melt bath for 5-15 min and then set it at rest for 15 -30 min (time period should be optimized depending on depth of the bath). After dwelling of melt, skim the dross with help of specific skimming tools. Before purging, it is recommended to use a tool to remove the viscous slag on the surface of the molten aluminum. If the total amount of 0.2-0.5 wt.% of refining flux can be purged into the melt in two to three times, the refining effect will be best.

FEATURES

- Environment friendly refining flux without dust.
- Uniform composition and stable refining effect.
- Specially designed grain size for injection without blocking the injector.
- Fluoride free and has less corrosiveness to furnace lining.
- Sodium free. It is recommended to use this product when low dross generation ratio is desired.
- Especially suitable for refining in holding furnace and can also be used in melting furnace.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Refining Flux – PUSGMN-01

This product is produced by melting mixture of various kinds of inorganic salts at high temperature, melt crystallization and solid granulation. It is used to remove non-metallic inclusions represented by oxides, reduce hydrogen content, and remove unnecessary alkali and alkaline earth metals in aluminum and aluminum alloy melt.

USE INSTRUCTIONS

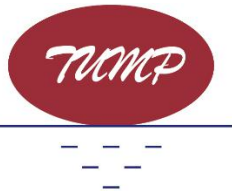
- For all aluminum alloys.
- Recommended operation temperature $>720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best).
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on volume and shape of scrap).
- After aluminum melt reaches the refining temperature, purge the purification agent granule into the bottom of melt bath with help of inert gas through lance or impeller. Stir the melt thoroughly (best stirring way: electromagnetic stirring/permanent stirring) during purging. After purging continue to stir the melt bath for 5-15 min and then set it at rest for 15 -30 min (time period should be optimized depending on depth of the bath). After dwelling of melt, skim the dross with help of specific skimming tools. Before purging, it is recommended to use a tool to remove the viscous slag on the surface of the molten aluminum. If the total amount of 0.2-0.5 wt.% of refining flux can be purged into the melt in two to three times, the refining effect will be best.

FEATURES

- Environment friendly refining flux without dust.
- Uniform composition and stable refining effect.
- Specially designed grain size for injection without blocking the injector.
- Fluoride free and has less corrosiveness to furnace lining.
- No "sodium embrittlement" in using this refining flux. It is highly recommended to use this product under all situations.
- Especially suitable for refining in melting furnace and can also be used in holding furnace.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Refining Flux – PUSGMN-02

This product is produced by melting mixture of various kinds of inorganic salts at high temperature, melt crystallization and solid granulation. It is used to remove non-metallic inclusions represented by oxides, reduce hydrogen content, and remove unnecessary alkali and alkaline earth metals in aluminum and aluminum alloy melt.

USE INSTRUCTIONS

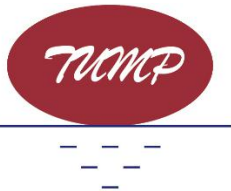
- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best).
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on volume and shape of scrap).
- After aluminum melt reaches the refining temperature, purge the purification agent granule into the bottom of melt bath with help of inert gas through lance or impeller. Stir the melt thoroughly (best stirring way: electromagnetic stirring/permanent stirring) during purging. After purging continue to stir the melt bath for 5-15 min and then set it at rest for 15 -30 min (time period should be optimized depending on depth of the bath). After dwelling of melt, skim the dross with help of specific skimming tools. Before purging, it is recommended to use a tool to remove the viscous slag on the surface of the molten aluminum. If the total amount of 0.2-0.5 wt.% of refining flux can be purged into the melt in two to three times, the refining effect will be best.

FEATURES

- Environment friendly refining flux.
- Uniform composition and stable refining effect.
- Specially designed grain size for injection without blocking the injector.
- Fluoride free and has less corrosiveness to furnace lining.
- No "sodium embrittlement" in using this refining flux.
- Especially suitable for refining in melting furnace and can also be used in holding furnace.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Drossing Flux – DRMPMKF-01

DRMPMKF-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to produce dry fragmented dross and separate trapped liquid aluminum from dross.

USE INSTRUCTIONS

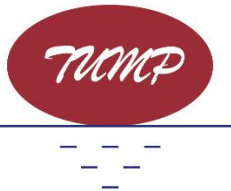
- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best).
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume of dross).
- After aluminum melt reaches the drossing temperature, spread the drossing agent powder on the surface of melt bath. Stir in the vicinity of the surface of melt bath (including electromagnetic stirring) in order to promote a thorough mixing and reaction between dross and agent powder. Afterwards set the melt at rest for 10 -15 min. After dwelling of melt, skim the fragmented and dry dross with help of specific skimming tools.

FEATURES

- Environment friendly drossing flux.
- Effectively promote separation of dross from liquid aluminum and reduce the loss of liquid aluminum in the process of dross skimming.
- Sodium free.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Drossing Flux – DRMPMNF-01

DRMPMNF-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to produce dry fragmented dross and separate trapped liquid aluminum from dross.

USE INSTRUCTIONS

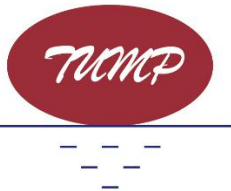
- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best).
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume of dross).
- After aluminum melt reaches the drossing temperature, spread the drossing agent powder on the surface of melt bath. Stir in the vicinity of the surface of melt bath (including electromagnetic stirring) in order to promote a thorough mixing and reaction between dross and agent powder. Afterwards set the melt at rest for 10 -15 min. After dwelling of melt, skim the fragmented and dry dross with help of specific skimming tools.

FEATURES

- Environment friendly drossing flux.
- Effectively promote separation of dross from liquid aluminum and reduce the loss of liquid aluminum in the process of dross skimming.
- No "sodium embrittlement" in using this drossing flux. It is highly recommended to use this product under all situations.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Drossing Flux – DRMPNKF-01

DRMPNKF-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to produce dry fragmented dross and separate trapped liquid aluminum from dross.

USE INSTRUCTIONS

- For all aluminum alloys.
- Recommended operation temperature $> 720^{\circ}\text{C}$ ($730-760^{\circ}\text{C}$ the best).
- Addition rate: 1.0-5.0kg per ton of aluminum (depending on the volume of dross).
- After aluminum melt reaches the drossing temperature, spread the drossing agent powder on the surface of melt bath. Stir in the vicinity of the surface of melt bath (including electromagnetic stirring) in order to promote a thorough mixing and reaction between dross and agent powder. Afterwards set the melt at rest for 10 -15 min. After dwelling of melt, skim the fragmented and dry dross with help of specific skimming tools.

FEATURES

- Environment friendly drossing flux.
- Effectively promote separation of dross from liquid aluminum and reduce the loss of liquid aluminum in the process of dross skimming.
- No "sodium embrittlement" in using this drossing flux.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Covering Flux – COMPMK-01

COMPMK-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to prevent aluminum melt from oxide generation and hydrogen pick-up, as well as to promote the separation of aluminum melt from dross layer.

USE INSTRUCTIONS

- For all aluminum alloys
- Addition rate: 1.0-5.0kg per ton of aluminum (depending surface area of the melt).
- During smelting, spread the powder covering flux evenly over the surface of the melt. And then remove the dross before casting or transferring the melt to other vessels.

FEATURES

- Environment friendly covering flux.
- Spread very well on the surface of liquid metal after melting, so as to prevent the melt from oxide generation and hydrogen pick-up.
- Effectively promote the separation of aluminum melt from dross layer and minimize aluminum content in the dross during skimming.
- Sodium free.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Covering Flux – COMPMN-01

COMPMN-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to prevent aluminum melt from oxide generation and hydrogen pick-up, as well as to promote the separation of aluminum melt from dross layer.

USE INSTRUCTIONS

- For all aluminum alloys.
- Addition rate: 1.0-5.0kg per ton of aluminum (depending surface area of the melt).
- During smelting, spread the powder covering flux evenly over the surface of the melt. And then remove the dross before casting or transferring the melt to other vessels.

FEATURES

- Environment friendly covering flux.
- Spread very well on the surface of liquid metal after melting, so as to prevent the melt from oxide generation and hydrogen pick-up.
- Effectively promote the separation of aluminum melt from dross layer and minimize aluminum content in the dross during skimming.
- No "sodium embrittlement" in using this covering flux.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.



Aluminum Covering Flux – COMPNK-01

COMPNK-01 is powder blend of various inorganic salts well prepared in a certain proportion. It is designed to prevent aluminum melt from oxide generation and hydrogen pick-up, as well as to promote the separation of aluminum melt from dross layer.

USE INSTRUCTIONS

- For all aluminum alloys
- Addition rate: 1.0-5.0kg per ton of aluminum (depending surface area of the melt).
- During smelting, spread the powder covering flux evenly over the surface of the melt. And then remove the dross before casting or transferring the melt to other vessels.

FEATURES

- Environment friendly covering flux
- Spread very well on the surface of the liquid metal after melting, so as to prevent melt from oxide generation and hydrogen pick-up.
- Effectively promote the separation of aluminum melt from the dross layer and minimize aluminum content in the dross during skimming.
- No "sodium embrittlement" in using this covering flux.

PACKAGE, Transportation, STORAGE

- 5 kg / small bag (vacuum-packed). 20 kg/ medium bag containing 4 pieces of small bags.
- Above mentioned medium bags are packed in ton-scale containers for both domestic and foreign transportation.
- This product is hygroscopic, please store it in a cool and dry place. Use the product as soon as possible after unpacking. After using, if there are products left unused, sealed the bag as tight as possible and store it in a dry place.

Research & Development

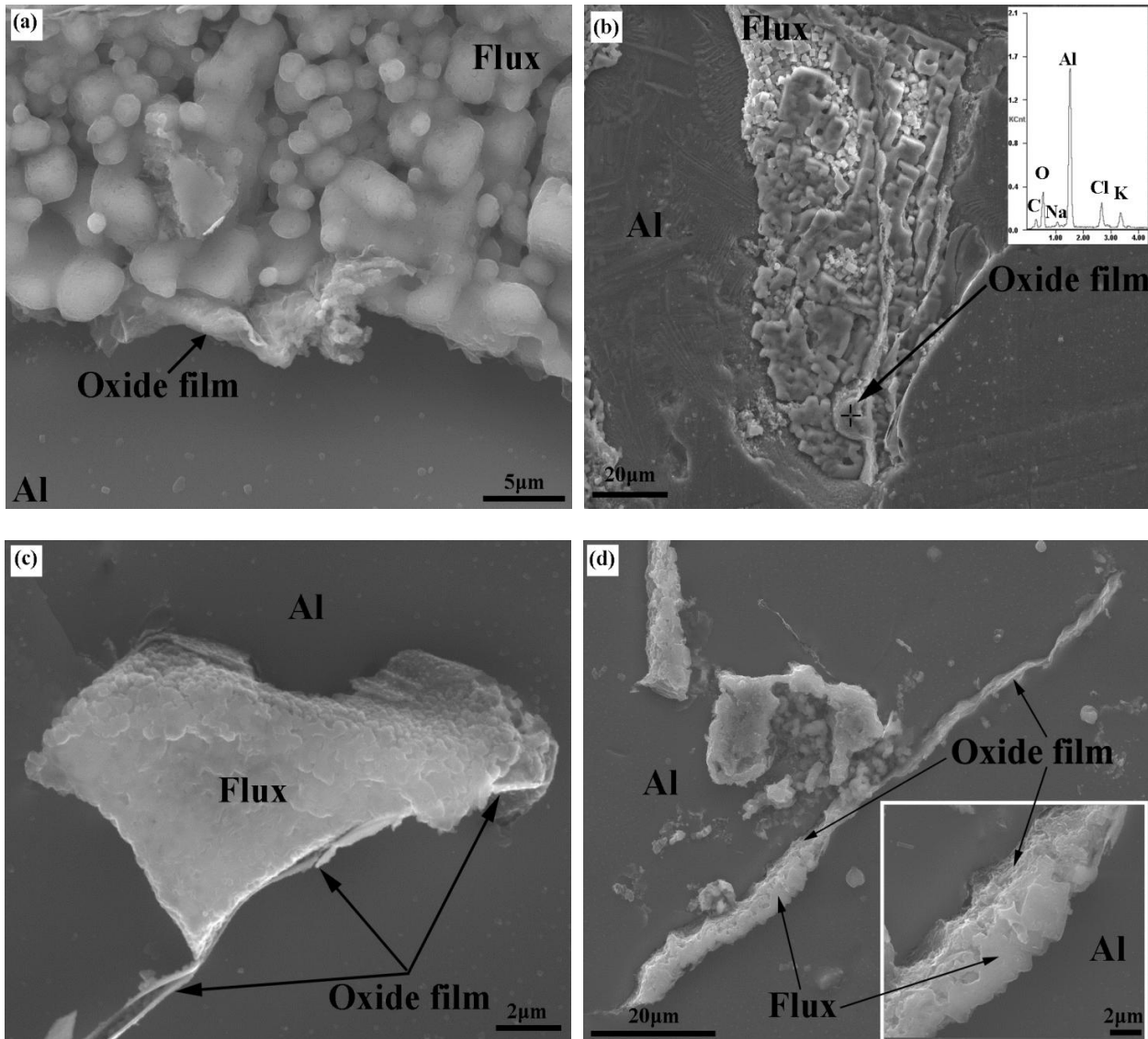


Figure 1 At refining temperature, wetting phenomenon in triple phase systems consisting salt flux (agent), aluminium melt and oxide films.

(a) an oxide film is being adhered by salt flux; (b) an oxide film is engulfed entirely by salt flux

(c) A salt flux droplet is spreading on the surface of an oxide film; (d) A salt flux droplet has finished its spreading on the surface of a thin oxide film and adhered to the film surface

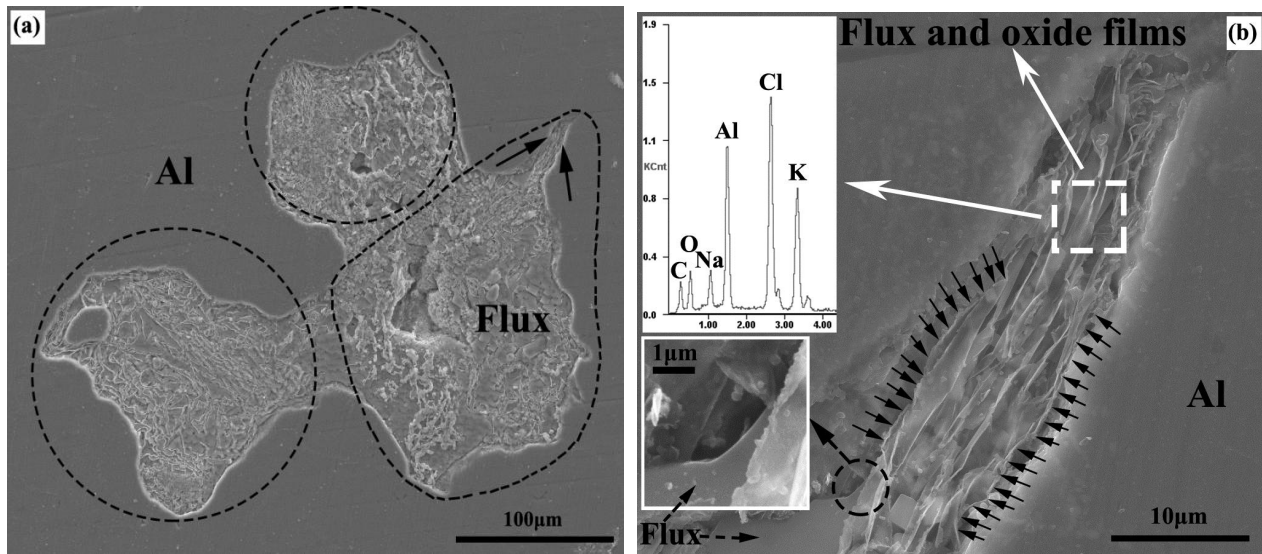


Figure 2 (a) coalescence course of salt flux droplet and wetting of the droplet on cluster of oxide films;
(b) an enlargement of area indicated by arrows in (a)

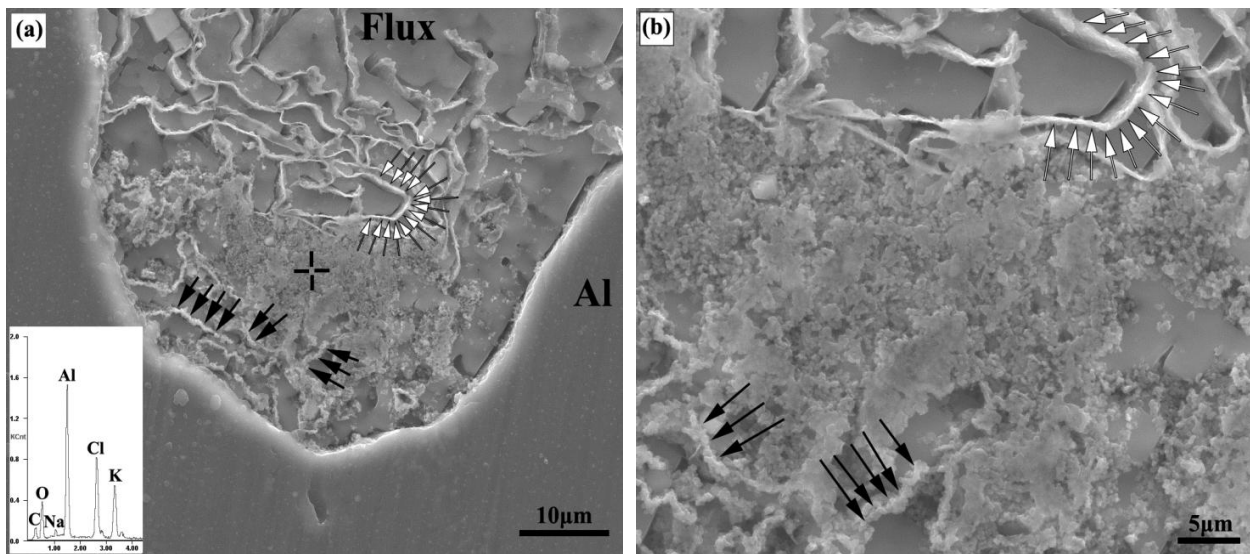


Figure 3 At refining temperature, wetting of salt flux on discontinuous oxide films
(a) discontinuous oxide films engulfed by salt flux; (b) an enlargement of discontinuous oxide films

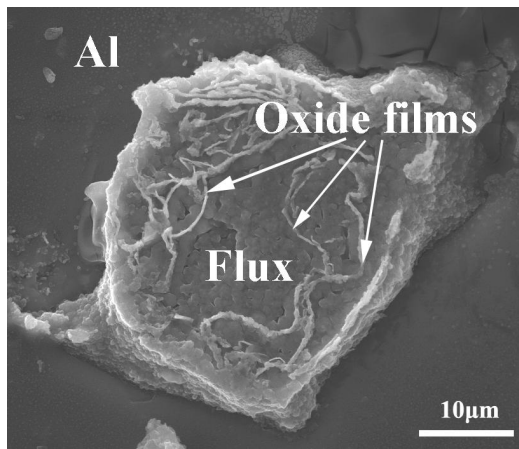


Figure 4 floatation a salt flux droplet which engulfs oxide films

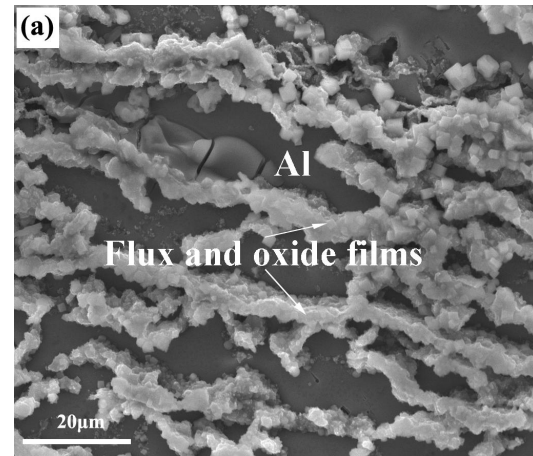


Figure 5 salt flux (dross agent) penetrates into channels constituted by oxide films

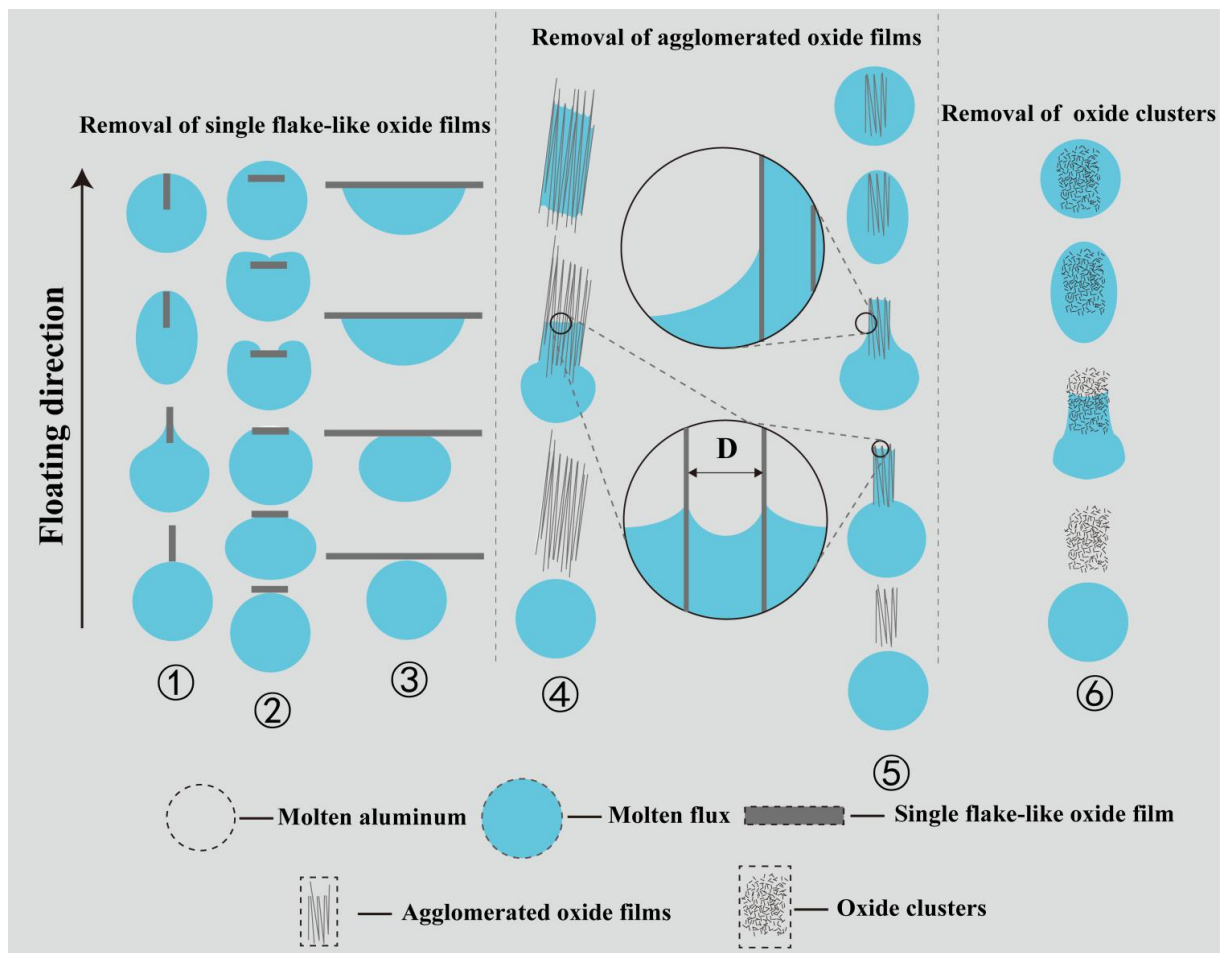


Figure 6 Schematic of removal of oxide films by salt fluxing
 Column ①, ② and ③: Removal of single flake-like oxide films; Column
 ④ and ⑤: Removal of single cluster of oxide films; Column
 ⑥: Removal of discontinuous cluster of oxide films



Customized Production Service

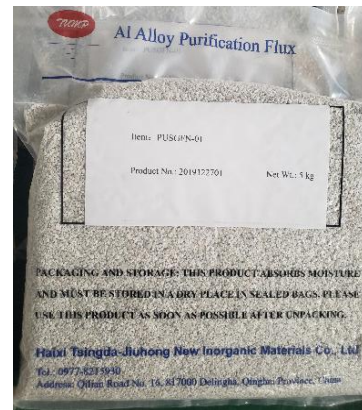


We offer production of customized product and technological service according to the types and characteristics of aluminum products, also per the request of our clients in terms of granular size of melt treatment agents and the emission control during the application of melt treatment agents.



Tsingda-Jiuhong

Products Basic Production Unit





Company Qualification





Tsingda-Jiuhong

**Excellent aluminium product quality stems from melt
purification**

**Superior aluminium product value originates from melt
purification**



Haixi Tsingda-Jiuhong

New Inorganic Materials Co., Ltd

Address: Delingha City, Qinghai Province

Contact Person: Jianguo Li

Tel.: 0977-8215930, 13911196726

E-mail: 13911196726@163.com

