

Qingdao Yosion Labtech Co.,Ltd

Fire Assay Laboratory Equipment

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Company Profile

QINGDAO YOSION LABTECH CO., LTD. is a comprehensive laboratory service provider integrating research & development, production, sales and service.

Yosion specialize in automated sampling & preparation system, sample preparation equipment, containerized laboratory, fire assay equipment & consumable etc. Our products are mainly delivered to major ports, entry-exit inspection system, research institutions, steel mills, mining companies, commercial laboratories and so on. Our independent research and production equipments have been exported to many clients and partners all over the world. The global market share is expanding solidly.

Yosion team bears in mind that quality comes first, innovation promotes development and honesty wins reputation. So we commit ourselves to promoting innovation and development of modern laboratory equipment and creating safe, efficient and comfortable working environment for laboratory workers. With strong R & D capability, more than twenty invention patents and utility model patents, Yosion was awarded as ""state-level high-tech enterprises" in 2016 by our government.

Through years of operation, we have established strategic partnership with New Zealand mineral laboratory equipment manufacturer ROCKLABS, Australia fire assay laboratory equipment manufacturer FURNACE & ASSAY, India MABOR and have been Authorized to be the sole distributor which is responsible for sales and service in China.

High-quality products and professional and efficient technical service have won us the recognition and praise among our customers. Now we are working with domestic and foreign scientific institutions to design and produce humane, intelligent and modular laboratory equipment. Over these years, we adhere to the business values that quality comes first, customer-orient and innovation focus. Yosion dedicate to providing the high performance-price laboratory equipments, high-efficient automated sampling & sample preparation products and responsible & reliable after-sale service.

DFC ASSAY FURNACE

Digital, solid state temperature controller using Type-K thermocouple, 485Modbus or LAN connectivity available allowing unit to be controlled via computer. Dual set point, low temperature idle feature, extending refractory and heating element life.

High alumina vibrocast refractory lining, allowing even heat distribution. Heavy cross section Nichrome heating elements, easily replaced from the front.

Integral exhaust blower and hood, with butterfly type damper system for variable air flow control to minimize and/or prevent oxide buildup.Refractory lining replacement accomplished entirely through rear access.Full sized hood for proper fume evacuation.

Swing away door allowing full access to heating chamber.

Model No.	Internal Dimension	Cupel Quantity & Model	Rated Temperature	Voltage
802	368Dx355Wx203H	48-50(38g, 40g)	1149	12k₩, 3PH
810B	425Dx641\x219H	28(30g, 40g, 50g)	1149	25k₩, 3PH
812	425Dx641\x219H	28(30g, 40g, 50g)	1149	25k₩, 3PH
815	425Dx641Wx219H	28(30g, 40g, 50g)	1149	40k₩, 3PH
815L	425Dx1000Wx219H	44(30g, 40g, 50g)	1149	55kW, 3PH



FUSION FURNACE

APPLICTION:

For sample fusion of fire assay.

System Overview:

This furnace has an easy to use main rotary on/off switch.

It is heated by 12 elements mounted in the side walls. It is ideally suited to continuous running as this will prolong the life of the elements.

Temperature is monitored and modulated automatically by a Type K thermocouple system and Omron temperature controller, pre-set for a maximum temperature of 1150 degrees Celsius. This controller is simple to operate, and has a 2-level display (PV and SV), that shows actual temperature as well as the temperature the furnace is set to.

The door has an Omron door switch installed that will automatically cut power to the heating elements when the door is opened

Model No.	Internal Dimension	Cupel Quantity & Model	Rated Temperature	Voltage
E25PFF		25X50 or 65garm- 42*30 or 40 or 55garm	1200	24kW, 3PH
25PFF		25X50 or 65garm- 42*30 or 40 or 55garm	1200	Natural Gas /Forced LPG /OIL
50/84PFF		50X50 or 65garm- 84*30 or 40 or 55garm	1200	Natural Gas /Forced LPG /OIL







CUPELLATION FURNACE

System Overview:

This furnace has an easy to use main rotary on/off switch.

It is heated by 12 elements mounted in the side walls. It is ideally suited to continuous running as this will prolong the life of the elements.

Temperature is monitored and modulated automatically by a Type K thermocouple system and Omron temperature controller, pre-set for a maximum temperature of 1100 degrees Celsius. This controller is simple to operate, and has a 2-level display (PV and SV), that shows actual temperature as well as the temperature the furnace is set to.

The door has an Omron door switch installed that will automatically cut power to the heating elements when the door is opened.

Model No.	Internal Dimension	Cupel Quantity & Model	Rated Temperature	Voltage
50PCF	450Dx250Wx145H	50x6a, 7a, 7as	1200	Natural Gas /Forced LPG /OIL
E50PCF	450Dx250Wx145H	50x6a, 7a, 7as	1200	10.5kW,3PH
100PCF	560Dx480Wx190H	100x6a, 7a, 7as	1200	Natural Gas /Forced LPG /OIL
E100PCF	560Dx480Wx190H	100x6a, 7a, 7as	1200	15kW,3PH
168PCF	650Dx650Wx220H	168x6a, 7a, 7as	1200	Natural Gas /Forced LPG /OIL





FLUX DISPENSER

Application:

For analysis sample preparation of fire assay

Features:

Reduce labors and finish sample loading of flux once. Three models of 25 pots, 50 pots and 84 pots are available.





Fire assay is the method that quantitative assays content of precious metals by smelting ores and metallurgical products with flux. It has advantages such as good representativeness, wide applicability, favorable enrichment effect etc. and so is the important method of chemical analysis of gold, silver and other precious metals.

The fire assay process uses high temperature fusion furnace and cupellation furnace whose temperature is more than 1000°C. The high temperature radiation and pernicious gas volatilization have serious hurt to operator's health. Fire assay tools and equipments can be used to reduce manual work intensity, improve work efficiency and avoid high temperature radiation.

All Fire assay tools and equipments can be customized.



FIRE ASSAY TOOL & EQUIPMENT

POT BENCH It is used for placing crucibles on the grids and then loading and unloading crucibles with pot loader after adding flux.



KNOCK UP BENCH

It is used for separating lead button from slag of cooled sample in pouring mould.





FIRE ASSAY TOOL & EQUIPMENT



POURING TROLLEY



POT TRAY

These three tools can be used in combination. At first, place them in front of fusion furnace in sequence as per the photo. Then use pot tong to get fusion samples out of furnace and pour into pouring mould. Finally invert crucibles onto pot tray.

POT TONG





Fire assay tools are easy to be operated to clean and maintain chamber of furnace.



FIVE-HOLE POURING MOULD: customized service is available.



ROBOTIC FIRE ASSAY FUSION SYSTEM

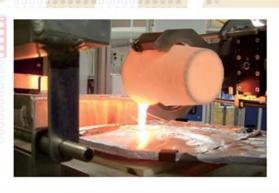
Robotic Fire Assay Fusion System is developed by YOSION as a part of fully automated fire assay system for the process from sample preparation to final OES analysis. The conventional manual fire assay furnace can not be used in automated system because robotic can not load and unload crucible. There are four crucible loading positions at the base of robotic fire assay fusion system. The platform which holds crucibles are delivered pneumatically into furnace from the bottom. The furnace has no doors, but the furnace temperature can be retained efficiently even during delivering crucibles. While conventional manual fire assay furnace will lose much heat when the doors are open. The furnace adopts Kanthal elements and so the temperature can be set to a maximum of 1300 ...

The cup containing the mixed sample and flux is taken by robot from fluxer to loading station where the sample and flux is poured into pre-heated crucibles. The crucibles are then sent by robot to fusion furnace for 15 minutes (or any fusion time) fusion. After fusion, crucibles are delivered by robot to Cowan separator where the molten Pb is separated from the slag and cooled to lead buttons. The lead buttons are then proceeded OES analysis on an ARL FAA spectrometer for PGEs, Au and Ag inside.









FIRE ASSAY LAB INTEGRATED SYSTEM

Market Demand

The expanding area of exploration and test and remote distribution of mining areas cause much inconvenience in sampling works and severe impact in test cycles. According to this situation, we have designed and developed readily transportable and relocatable containerized laboratory of sampling & preparation to meet all project laboratory requirements from simple sample preparation to analysis units.

Features

- 1. Free from influence of region and environment
- 2. One-time investment and repeat use save basic input costs and laboratory preparation time.
- 3、High mobility.
- 4. Easy maintenance and operation.
- 5. Improvement of operators' working environment.

Technical Parameter:

Overall Dimension: 12000 x 2200 x 2800mm

Weight: 16 tons

Voltage: 380V / 50Hz

Equipment List: Air Compressor, Pulse Dust Collector,

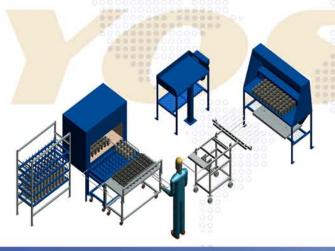
Air Conditioner, Fusion Furnace, Cupellation Furnace,

Fire Assay Tools

Sample Processing Capability: 100 - 600 ps/shift

Remarks: Customised service is available.







FIRE ASSAY LAB DEDUCTING SYSTEM

With the continuous development of industrial modernization, more and more quantity and kind of samples which laboratory and sample preparation room need test. The requirements to environment of laboratory and sample preparation room also become stricter and stricter. So we have designed and developed laboratory dedusting system which adopts cartridge filter pulse dust collector and suits for such current trends.

Cartridge filter adopts one kind of micro filter which sandwhiches activated carbon adsorbent material. So it can filter 99.9% submicron particle.







FIRE ASSAY CRUCIBLES



DESCRIPTON

With a comprehensive product range and the ability to make custom lots, combined with its presence at our global partners and customers, Yosion Labtech is able to supply assaying laboratories with premium quality product where and when they want.

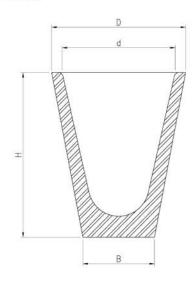
Not content with offering a one shot disposable crucible, Yosion Labtech fire assay crucibles have a well deserved reputation for multiple firings. This feature provides our customers with the important benefits of reducing cost per firing and increasing profitability.

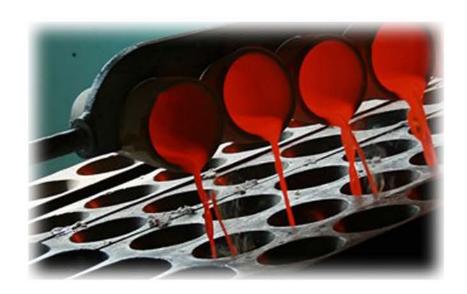
Manufactured using the latest automated technology, sizing consistency is guaranteed resulting in a high degree of accuracy critical with multi-pour systems and automated lines. You can be assured that Yosion Labtech will supply a top quality and consistent crucible.



FIRE ASSAY CRUCIBLES

Profile





Model No.	AKA	Volume (ml)	Top OD "D" (mm)	Top ID "d" (mm)	Height "H" (mm)	Base OD "B" (mm)	Crate Quantity
YAC0215	20 gram	215	88	74	107	47	2100
YAC0245	30 gram	245	88	78	107	47	2100
YAC0353	40 gram	353	88	78	135	55	1785
YAC0370	K45	370	95	79	159	55	1235
YAC0430	50 gram	430	105	92	148	58	1530
YAC0455	A pot	455	105	90	132	56	972
YAC0470A	55 gram	470	88	76	155	57	1296
YAC0 <mark>500</mark>	65 gram	500	105	92	165	55	1425
YAC0540	*****	540	114	96	152	79	936
YAC1113		1113	124	112	178	73	770

FIRE ASSAY CUPELS



Description

During cupellation, the lead is oxidized to litharge (PbO), most of which is absorbed by the cupel. Gold, silver, platinum and other precious metals form a bead in the cupel. The bead is subsequently treated to determine its precious metal content Cupels are typically made from magnesia MgO (sometimes mistakenly referred to as magnesite), bone ash. Portland cement and other materials.

Typical cupellation furnace temperatures in gold and silver assays are 900-1000°C,but can vary with technique, air flow volume and cupel material.

Cupellation is the last and most important step of the fire assaying process and as such, the quality of the cupels is extremely important.

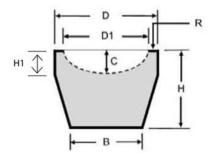


Sizes are: 6A, 7A, 7AS, 7AL, 8A and 9

Yosion Labtech aim to achieve high magnesia content with low moisture percentage.

FIRE ASSAY CUPELS

Main ingredient: MgO







[A] Dimensions in "mm" approx.

Cupel Size	Height "H"	Top Diam. "D"	Base Diam. "B"	Cup Diam. "D1"	Depth of Cup "C"	Cup Ridge Width "R"	Cup Ridge Height "H1"	Approx. Weight (g)	Pb Absorption @70% (g)
6A	25.4	40.0	30.0	32.7	6.0	3.7	12.3	47.5	33.25
7A	28.5	39.7	30.0	31.2	9.0	4.3	11.8	59.0	41.30
7AL	28.5	39.7	30.0	31.2	6.0	4.3	12.3	55.0	38.50
7AS	34.0	40.0	30.0	31.0	12.0	4.5	14.0	72.0	50.40
8A	35.0	45.3	36.9	38.0	13.0	3.7	12.5	100.5	70.35
9	29.0	51.0	42.1	40.0	9.0	5.0	10.5	109.0	76.30

[B] Packing

The Cupels are packed in solid cardboard cartons:-

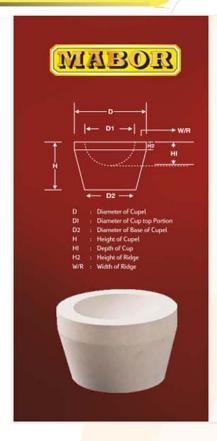
Cupels per				2220000000	
carton	Cartons per pallet	Gross Weight per carton (kg)	Carton Length (cm)	Carton Width (cm)	Carton Height (cm)
300	48	15.0	41.5	23.0	18.0
300	48	18.5	42.0	23.0	19.5
420	40	24.3	50.5	30.7	17.0
300	48	22.1	41.5	23.0	23.0
200	48	20.8	46.5	24.5	16.0
		21.7	42.5	23.0	20.0
	300 300 420 300 200	carton pallet 300 48 300 48 420 40 300 48 200 48	carton pallet per carton (kg) 300 48 15.0 300 48 18.5 420 40 24.3 300 48 22.1 200 48 20.8 192 48 21.7	carton pallet per carton (kg) (cm) 300 48 15.0 41.5 300 48 18.5 42.0 420 40 24.3 50.5 300 48 22.1 41.5 200 48 20.8 46.5 192 48 21.7 42.5	carton pallet per carton (kg) (cm) (cm) 300 48 15.0 41.5 23.0 300 48 18.5 42.0 23.0 420 40 24.3 50.5 30.7 300 48 22.1 41.5 23.0 200 48 20.8 46.5 24.5 192 48 21.7 42.5 23.0

MABOR CUPELS





MABOR CUPELS



Cupels Data

Cupels Data Height of Cupe Depth of Cup 4.3 22.0 17.5 16.5 2.30 18.4 5.0 13.0 24.0 19.0 26.3 21.3 19.9 20.0 30.4 25,4 27.0 24.0 20.0 1.50 26.2 21.9 2.70 19.7 5.0 24.5 31.6 39.5 31.2 29.0 4.15 22.0 11.0 6.5 44.5 40.0 32.7 30.0 6.0 47.5 39.7 31.2 39.7 31.2 30.0 4.25 6.0 55.0 39,7 31.2 30.0 4.25 32.0 12.5 67.5 39.7 31.2 30.0 4.25 40.0 30.2 30.0 4.90 25.4 8.7 6.0 54.5

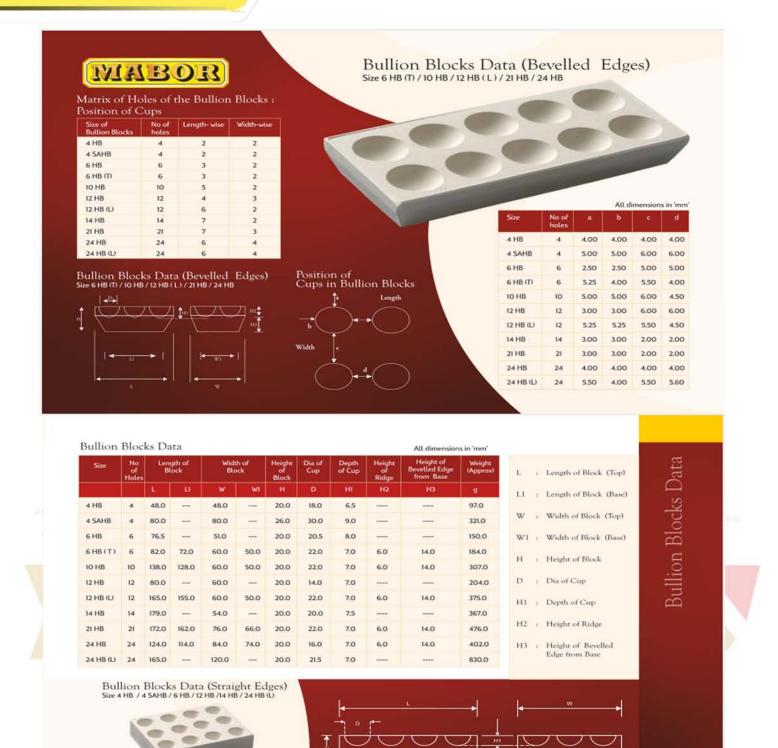
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Size	Outer Dia	Dia of Cup	Dia of Base	Width of Ridge	Height of Cupel	Depth of Cup	Height of Ridge	Weight (Approx)
	D	DI	D2	W/R	н	HI	H2	g
8A	45.3	38.0	36.9	3.65	35.0	12.5	13.0	100.5
8AM	45,3	34.0	36.9	5.65	35.0	11,5	13.0	105.5
8C	44.8	34.0	35.5	5.40	31.0	12.5	11.0	89.0
85	44.0	38.0	34.0	3.00	40.0	14.0	13.0	107.0
SY	42.0	38.0	42.0	2.00	33.0	9.0	2000	98.0
9	51,0	40.0	42.1	5.50	29.0	10.5	9.0	109.0
9C	51.0	42.0	43.0	4.50	33.5	12.0	5.5	126.0
9F	51.0	42.0	41.0	4.50	40.0	14.0	11.0	138.5
10	60.0	52.6	49.7	3.70	30.2	11.5	11.0	148.5
11	56.8	47.8	48.8	4.50	44.0	14.8	10.0	197.0
11A :	56.8	47.8	48.8	4.50	44.0	11.5	10.0	210.0
12.	80.2	57.5	62.5	11.35	47.0	16.5	11.0	443.0
12A	80.2	57.5	62.5	11.35	52.5	16.5	16.5	507.0
14	110.0	80.0	88.0	15.00	70.0	24.0	14,0	1187.0
15	150.0	120.0	128.0	15.00	130.0	40.0	25.0	4725.0
PC	254.0	184.7	203.2	34.65	161.64	55.42	32.33	16000.0

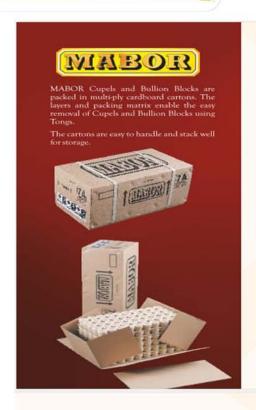




MABOR CUPELS



MABOR CUPELS



Packing & Gross Weight details of Cartons

Size	Nos	Outer d	Gross		
	per Carton	Length cm	Breadth cm	Height cm	Weight Kg
4	1440	39.0	23.0	18.0	19.5
2X	1296	39.0	23.0	18.5	17.5
3	1080	39.0	22.5	19.0	18.6
4	819	38.0	21.5	20.0	17.2
4A	900	39.5	27.0	16.0	20.5
5	728	39.5	22,0	19.0	18.5
6	462	39.5	22.5	18.0	18.0
7	300	41.5	22.5	17.0	14.0
PM	720	43.0	23.5	17.0	20.5
6A	300	41.5	23.0	18.0	15.0
7A	300	42.0	23.0	19.5	18.5
7A	420	50.5	30.7	17.0	25.9
7AL	420	50.5	30,7	17.0	24.3
78	300	42.0	23.0	22.0	21.1
7X	300	42.0	23.0	23.0	23.6
SA	300	42.0	23.0	18.0	17.1
8	240	38.0	29.5	16.0	18.2

Packing & Gross Weight details of Cartons
Cupels

Size	Nos	Outer dim	Outer dimension of Packed Cartons				
per Carton	Length cm	Breadth cm	Height cm	Weight Kg			
8A	200	46.5	24.5	16.0	20.8		
BAM	200	46.5	24.5	16.0	21.8		
вС	240	38.5	30.2	17.5	22.3		
88	180	45.5	27.8	14.0	20.0		
BY	200	44.5	23.5	15.0	20.2		
9	192	42.5	23.0	20.0	21.7		
C	160	42.5	23.0	19.0	20.9		
9F	128	43.0	23.5	18.0	18.4		
10	140	44.0	26.0	17.0	21.5		
n	112	42.0	25.0	20.0	22.7		
AII	112	42.0	25.0	20.0	24.2		
12	45	42.5	26.5	16.0	20.6		
I2A	45	42.5	26.5	18.0	23.5		
4	16	46.5	25.5	16.0	19.7		
15	4	33.5	33.5	14.5	20.0		
PC	1	29.5	29.5	17.5	16.6		

Packing & Gross Weight details of Cartons

Bullion Blocks

Size	Nos	Outer dire	Gross		
	Per Carton	Length cm	Breadth cm	Height cm	Weight Kg
4 HB	224	42.0	23.0	18.5	22.8
4 SAHB	60	42.0	26.0	13.0	19.8
6 HB	120	41.0	24.0	15.5	18.8
6 HB (T)	120	43.5	27,0	15.0	22.8
10 HB	60	44.0	27.5	13.0	19.2
12 HB	105	43.0	21.5	18.0	22.2
12 HB (L)	48	38.9	19.9	22.5	19.1
14 HB	56	40.0	21.5	19.0	21.7
21 HB	42	36.0	25.0	20.0	21.3
24 HB	48	35.0	26.5	18.5	20.3
24 HB (L)	24	38.9	19.9	22.5	21.0





青岛垚鑫实验室科技有限公司 QINGDAO YOSION LABTECH CO.,LTD

Lead Oxide









Yellow Lead is a kind of yellow or yellowish brown powder, its specific density is 9.53 g/cm3, melting point is 888°C, boiling point is 1470°C. Heated to 300-500°C, changes into Red Lead; With the temperature going on, changes into Yellow Lead again. It doesn't dissolve in water and alcohol, but dissolves in glacial acetic acid easily; it is poisonous while dissolving in nitric acid.



Yellow Lead is used to make white lead powder, with oil is made into soap, in paint industry is used as lead drier, in plastic industry is used as stabilizer, with great quantity is also used as the raw material for making optical glass, pottery and porcelain; is also used to made radiation protection rubber, chrome pigment, and is used to make accumulator with a small amount.



Red Lead is a kind of fresh orange red powder, its specific density is 9.1 g/cm3, it starts to disintegrate into Lead Oxide at 500°C, is insoluble in water and alcohol, soluble in nitric acid, partly soluble in glacial acetic acid, soluble in hot aqueous alkali. It changes into black Lead sulphide while meeting hydrogen sulphide, while put outdoor in the open air it changes into while Lead sulphate and it is poisonous.

Red Lead is mainly used to make Antirust Paint, Optical glass, Pottery glaze and Enamel. in electric industry is used to make pressure cell, in Chemical industry is used for weak oxidizer.



EQUIPMENT CONSUMABLES



Silicon Carbide Rod Heating Tube



Furnace Chamber



Rrocess Controller



Burning Controller



Furnace Plate



Ceramic Fiber Blanket

CORPORATE PERFORMANCE









Mineral Processing Laboratory in Tanzania









Sample Preparation Laboratory in Tanzania









Fire Assay Laboratory





CIQ Laboratory