

# RELIABLE GREEN INNOVATION

## 可靠的绿色创新

# MASERCATA LTD



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MAZANAZU & TECHNOLOGY  
MAZANASU & 技术

Masercata Ltd

BETTER MATERIAL - BETTER ENVIRONMENT  
更好的材料 - 更好的环境

19.11.2020

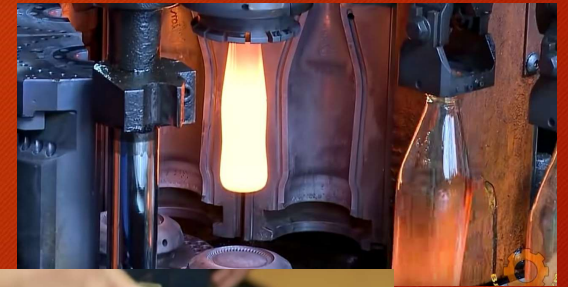


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更持久、更优质的金属，  
由消耗能源更少的废物制成；减少排放

**LONGER LASTING, BETTER  
QUALITY METALS MADE FROM  
WASTE WITH LESS ENERGY, LESS  
EMISSIONS**

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玻璃瓶模具 4 x  
更长的使用寿命

Glass Bottle Mould 4  
x longer usage life

19.11.2020

# 产品供应 PRODUCT OFFERING



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## 1. MAZANASU SPAF炉

- 为工艺和材料定制
- 0.5 - 100 吨容量

## 2. 技术

- 要使MAZANASU加热炉正常工作，  
需要根据具体的应用技术和工艺

## 3. 权限

- 提供特定流程和地理区域的技术、  
产品及业务权利

## 1. MAZANASU SPAF Furnaces

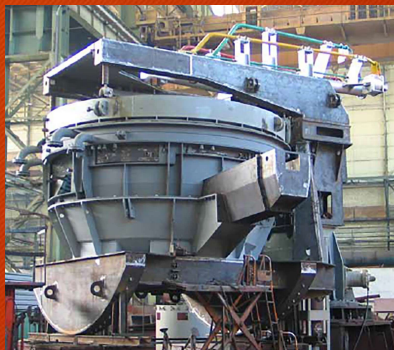
- Customized for the process and material
- 0.5 - 100 TON Capacity

## 2. Technology

- Technology and Processes according to  
the specific application are required to  
make Mazanazu Furnaces to work

## 3. Rights

- Technology, Product & Business rights for  
the specific process and geographical  
area are available



## MAZANASU XX -SPAF-12

SPAF = SPECIAL PLASMA  
ARC FURNACE 19.11.2020

# 炉 FURNACES



炉基本 FURNACE BASICS

熔炉类型 Furnace Type	标称容量铸铁/钢 (吨) Nominal Capacity Cast Iron / Steel (Ton)	标称容量铸铁/钢 (吨) Maximum Capacity Cast Iron / Steel (Ton)	标称容量铸铁/钢 (吨) Furnace & Accessories Mass (kg)	炉内直径 (毫米) Furnace Inside diameter (mm)	安装 WxLxH (米) 所需的 Space Required for installation WxLxH (m)	所需提升能力 (吨) ) Required Lifting Capacity (ton)	起重机构最小高度 (米) Crane Hook Minimum Height (m)	电极数/电极直径 (毫米) ) Number of Electrodes / Electrode Diameter (mm)	电极行程 (毫米) Electrode Travel (mm)	当前携带融合持续时间 (分钟) Current Carrying Fusion Duration (min)	聚变电力的特定消耗 (千瓦时/吨) Specific consumption of the electric power for fusion (kWh/ton)	电极的特定消耗量 (千克/吨) Specific consumption of the electrode (kg/ton)	变压器容量最大值 (千瓦) Transformer Capacity Max. (kW)	变压器容量最大值 (千瓦) Transformer Capacity Nominal (kW)	变压器容量最大值 (千瓦) Supply Line (STD) (Options Available)	源 (kA) 的额定输出电流 Rated Output Current at Source (kA)
MZ-XX-SPAF 0.5	0,4/0,45	0,5/0,5	4,000	800	10x10x6	3	4	1 / 150	500	20	600	<4	400	350	380V3P	2
MZ-XX-SPAF 1.0	1,0/1,2	1,1/1,2	6,500	2000	17x17x8	5	8	3/150	800	35...45	450...500	<0,5...0,7	800	700	6/10 kV	7
MZ-XX-SPAF 1.5	1,4/1,7	1,5/1,7	10,500	2300	20x20x8	10	10	3/150	1000	35...45	420...450	<0,5...0,7	1600	1200	6/10 kV	15
MZ-XX-SPAF 3.0	2,8/3,2	3,1/3,3	18,000	2700	25x25x10	10	16	3/200	1400	45...50	410...430	<0,5...0,7	2400	2000	6/10 kV	20
MZ-XX-SPAF 6.0	5,8/6,2	6,1/6,3	26,000	3200	25x25x10	10	24	3 / 300	2000	45...50	400...420	<0,5...0,7	4800	4000	6/10 kV	50
MZ-XX-SPAF 8.0	8,0/8,4	9,0/10,0	38,000	3350	30x30x16	10	24	3/300	2100	45...50	380...400	<0,5...0,7	14400	10000	6/10 kV	80
MZ-XX-SPAF 12.0	12,0/12,4	13,0/14,0	54,000	3500	30x30x24	20	24	3 / 350	2164	50	380...400	<0,5...0,7	19200	14000	6/10 kV	100
MZ-XX-SPAF 15.0	15,0/15,5	16,0/17,0	60,000	3800	30x30x24	20	24	3/350	2300	50	380...400	<0,5...0,7	24000	18000	6/10 kV	130
MZ-XX-SPAF 30.0	30,0/32,0	32,0/34,0	70,000	4300	30x30x36	20	30	3/500	2600	50	360...380	<0,5...0,7	39000	30000	6/10 kV	150
MZ-XX-SPAF 50.0	50,0/55,0	55,0/60,0	120,000	5000	50x50x36	20	34	3/500	3000	50	360...380	<0,5...0,7	48000	40000	6/10 kV	250
MZ-XX-SPAF 100.0	100,0/110,0	110,0/120,0	200,000	5800	80x80x48	120	48	3/800	3600	40	350...360	<0,5...0,7	90000	80000	6/10 kV	500

\* 这些参数是按情况考虑的 (XX 是根据炉子的应用指定的) \* These parameters are considered on a case-by-case basis (XX is specified according to the application furnace is made for)

# MASANASU 更好的金属 Better Metals

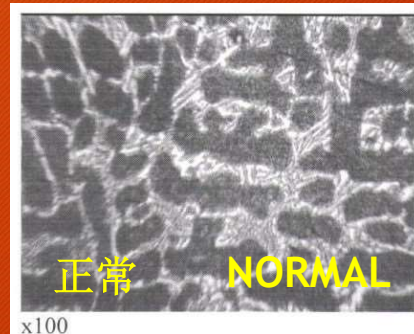


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- 精细的微观结构
- 更强的金属
- 减少杂质和缺陷
- C、P、S 减至 0.001%
- 快速热处理



金属性能更好，磨损寿命和强度提高 2-4 倍




- Fine Microstructure
- Stronger metals
- Less impurities and defects
- C, P, S reduction to 0.001%
- quick heat treatment



Better performing metals 2-4 times improvement in wear life and strength

# SCI Super Cast Iron

	材料 MATERIAL	抗拉强度 TENSILE STRENGTH	0.2 % PROOF STRESS 证明应力	伸长 A [%] 最小值。 ELONGATI ON A [%]	布里内尔硬度 范围 HBW BRINELL HARDNESS RANGE HBW	硬度 HRC HARDNESS HRC	弹性的模数 MODULUS OF ELASTICITY
		Rm [N/MM2] min.	Rp 0.2 [N/MM2]	min.			E [kN/mm2] (typical values)
球墨铸铁 DUCTILE CAST IRON	<b>DUCTILE IRON (EN 1563)</b>						
	EN-GJS-400-18	400	250	18	~130...~175		169
	EN-GJS-400-15	400	250	15	~135...~180		169
	EN-GJS-450-10	450	310	10	~160...~210		169
	EN-GJS-500-7	500	320	7	~170...~230		169
	EN-GJS-600-3	600	370	3	~190...~270		174
	EN-GJS-700-2	700	420	2	~225...~305		176
EN-GJS-800-2	800	480	2	~245...~335		176	
ADI	<b>ADI (EN 1564)</b>						
	EN-GJS-900-8	900	600	8	260...320		163...170
	EN-GJS-1050-6	1000	700	5	300...360		160...168
	EN-GJS-1200-3	1200	850	2	340...440		158...167
SCI超级铸铁 SCI SUPER CAST IRON	<b>SUPER CAST IRON (PROERTIES AFTER CASTING)</b>						
	SCI-600	600	370	3	190...240		
	SCI-700	700	420	2	200...250		
	SCI-800	800	470	2	210...260		
	<b>HEAT TREATED SUPER CAST IRON (PROPERTIES AFTER MARTENSITE HARDENING TREATMENT)</b>						
	SCI-1500-H	1500	1200	9	~486*	50	
	SCI-1600-H	1600	1300	10	~557*	55	
SCI-2000-H	2000	1680	11	~642*	60		
铸钢钢化 CAST STEEL TEMPERED	<b>CAST STEEL TEMPERED</b>						
	GS-25CrMo4	600...900		12...18	285*	30	
	GS-34CrMo4	620...1000		10...14	285*	30	
	GS-42CrMo4	700...1100		10...14	285*	30	
	GS-30CrMoV 6 4	750...1100		10...14			
	GS-30NiCrMo 8 5	850...1250		10...16			
	GS-33NiCrMo 7 4 4	850...1250		10...16			

Super Cast Iron is The Best in The World. It has the Properties of Cast Iron – creates a "slap" (surface hardening) on castings and properties of steel – plasticity and shock resistance.

超级铸铁是世界上最好的。它具有铸铁的特性 – 对铸件和钢的特性 - 可塑性和抗冲击性创建"拍打" (表面硬化)。

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- Fine forged microstructure
- Low gas saturation
- Minimal impurities

- 精细锻造微结构
- 低气体饱和度
- 最小杂质

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# 原料 - 处理 RAW MATERIALS - PROCESSING



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- 含金属（±30%或更少）废无可进行处理
- 灰尘、污泥（含水量 20 ~ 70%）进行分解处理
- 从矿石到最终产品生成，
- 金属氧化物的回收率99.5%



红泥 RED MUD

- Metal containing (~30% or less) waste can be processed
- Dust, Sludge (moisture content 20 - 70%) OK
- Direct processing from ore to final products
- Effective metal recovery from oxides 99.5 % efficient

- ❖ 有效的快速处理
- 快速热处理
- 锻造结果，无需锻造
- 减少缺陷和杂质
- ➔ 节约生产成本！



镍氢氧化物

NICKEL HYDROXIDE

磨量表  
MILL SCALE

- ❖ 有效的快速处理
- Quick heat treatment
- Forging results, without forging
- Less defects and impurities
- ➔ SAVINGS!

MAZANASU RM



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从测试设施

From The  
Test Facility

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红泥融化

Red mud melting

红泥  
罗塞宁  
水分含量可以是  
20...25%

Red Mud  
Rrocessing

Moisture content can  
be 20..25%

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# 回收 RECYCLING



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项目	"浪费"	重新覆盖为
1	BAUXITE"红泥"	低碳钢、铸铁、铁铝、铁合金
2	硫铁矿 (在铁铁矿加工过程中产生的废物)	低碳钢、铸铁、铁铝、铁合金
3	冶金和钢铁生产气体和气体清洗的废物	低碳钢、铸铁、铁铝、铁合金
4	铁磨机规模 (包括湿污泥), 包括合金钢	低碳钢、铸铁、铁铝、铁合金
5	废铬铁矿	铬合金铸铁类型
6	含镍污泥、氢氧化镍、镍和镍电池片	FeNi
7	含铜渣、污泥、废料、播种、规模	铜坯, 铜牌号纯度为 99.9%
8	化学和炼油行业的含钠废物、废催化剂	铁合金
9	电子废料、含有贵金属和有色金属的汽车催化剂、含废滤芯的钴	含有贵金属的合金经过进一步精炼, 以生产纯贵金属锭, 以及稀有金属 (例如钴) 的护照空白。
10	重熔高碳钢废料、芯片, 包括高合金钢	低碳钢坯, 钢板的碳含量高达0.001%
11	重熔废料和芯片高速钢 HSS	绕过锻造工艺制造切削刀具的毛坯
12	重熔废铁	铸件、离心铸件高品质灰铸铁、超级铸铁



金属含量最小 30%，水分含量高达 20% (25%) 可以直接处理

# RECYCLING

## 回收



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Grinding Dust

ITEM	"WASTE"	RECOVERED AS
1	<b>BAUXITE RESIDUE "red mud"</b>	Low carbon steel, Cast Iron, Ferroaluminum, Ferro alloys
2	<b>Pyrite cinder</b> (waste generated during the processing of iron pyrites)	Low carbon steel, Cast Iron, Ferroaluminum, Ferro alloys
3	<b>Waste of gas and gas cleaning of metallurgical and steel production</b>	Low carbon steel, Cast Iron, Ferroaluminum, Ferro alloys
4	<b>Iron mill scale (incl. Wet sludge), including alloy steel</b>	Low carbon steel, Cast Iron, Ferroaluminum, Ferro alloys
5	Spent <b>chromite sands</b>	Chrome alloyed cast iron type
6	<b>Nickel-containing sludge, Hydroxide Nickel, Ni-Fe and Ni-Cd battery lamellas</b>	Ferronickel
7	<b>Copper-containing slags, sludge, scrap, seeding, scale</b>	Copper billets, copper grades till 99.9% pure
8	<b>Vanadium-containing waste, spent catalysts for chemical and oil refining industries</b>	Ferrovandium
9	Electronic scrap, <b>automotive catalysts</b> containing precious and non-ferrous metals, <b>cobalt containing waste filters</b>	Alloys containing precious metals are further refined in order to produce pure precious metal ingots, as well as passport blanks of rare metals, for example, cobalt.
10	Remelting <b>high carbon steel scrap</b> , chips, including high alloy steel	Low carbon steel billets, slabs with a carbon content of up to 0.001%
11	<b>Remelting scrap and chips high-speed steels HSS</b>	Blanks to manufacture cutting tools bypassing the forging process
12	Remelting <b>iron scrap</b>	Castings, centrifugal castings high quality gray cast iron, Super Cast Iron



Mill Scale & Sludge

Min. metal content 30% ,Moisture Content up to 20% (25%) is possible to process directly

# STEEL MILL SCALE

## 钢厂规模



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- 在工厂，典型氧化铁含量：  
64%=FeO = 34% Fe<sub>2</sub>O<sub>3</sub> ! 最大铁含量：  
64% (FeO) × 0.77 × 49.28% × 34% (Fe<sub>2</sub>O<sub>3</sub>) × 0.7 = 23.8% 总计 = 73.08 %
- 铁含量：70 - 77% (通常99 - 99.5 Fe的铁是从氧化铁中回收)
- 结渣量：50-130 kg / 吨 (以无害为主 SiO<sub>2</sub>)
- 功率使用 500....550 kWh / 吨

Furnace	Mill Slag processing capacity 3 shift / day (tn)	Extracted Fe from Mill Slag during one day 3 shift / day		Annual Capacity 320 days, 3 shifts		磨渣加工能力 (吨) / 天 3班 / 天	一天从磨坊渣中提取 Fe 3班 / 天		年产能 320 天, 3 班		
		Iron (ton)	Processing time*(minute)	320	days		320	日	磨量表 (吨) (77% Fe)	铁 (吨)	处理时间* (分钟)
0.5tn	6.6	5.10	60	2112	1632	0.5tn	6.6	5.10	60	2112	1632
1tn	16	12.32	60	5120	3942.4	1tn	16	12.32	60	5120	3942.4
3tn	52	40	60	16640	12800	3tn	52	40	60	16640	12800
6tn	100	77	60	32000	24640	6tn	100	77	60	32000	24640
12tn	200	154	60	64000	49280	12tn	200	154	60	64000	49280

- Typical iron oxide content of Fe in mill scale: 64%=FeO & 34% Fe<sub>2</sub>O<sub>3</sub> ! The maximum iron content: 64% (FeO)x 0.77 = 49.28% & 34% (Fe<sub>2</sub>O<sub>3</sub>) x 0.7 = 23.8% Total => 73.08 %
- Iron content: 70 - 77% (Typically 99 - 99.5 Fe recovery from iron oxide)
- Slag formation: 50-130 kg / mill scale ton (harmless mainly SiO<sub>2</sub>)
- Power used 500....550 kWh / ton of mill scale



# MAZANASU CM 系列



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## 有色金属加工

- 更经济化的生产黄铜、青铜和铜 (也包括用其他方法难以回收的废物, 如研磨灰尘和矿渣)
- 精炼可达到 99.9% 纯度

- Non Ferrous Materials processing
  - Economies to process Brass, Bronze and Copper (also waste, like grinding dust, slag)
  - Refining material to "label class" 99.9% pure



从青铜的粉末及矿渣到青铜金属



Bronze Dust & Slag to Bronze Metal





## 技术：回收（废物）：

- 广泛适应不同的材料加工，在加工过程中去除毒素
- 危险废物处理和金属回收：
  - **化学和石油工业**：过滤器和旧管道、阀门
  - **核废料**：去除放射性 – 回收清洁金属
  - **电力行业**：
  - **金属工业**：细碎废料、粉末或油性材料、高速钢金属废料
  - **铸造厂和钢厂**：高炉和转炉污泥，用过的铬铁矿砂
  - **钢厂**：轧制氧化皮、转炉污泥和炉渣
- **Technology: RECYCLING (WASTE):**
  - Widely adaptable for different material processing, toxins are removed in the process
  - Dangerous waste processing and metal recovery:
    - **Chemical & Oil industry**: filters and old pipes, valves
    - **Nuclear waste**: remove radioactivity – recover clean metals
    - **Power industry**:
    - **Metal Industry**: fine grinding waste, fine or oily materials, HSS metal waste
    - **Foundries and Steel mills**: blast and converter furnace sludge, used cromite sands
    - **Steel Mills**: mill scale, converter sludge and slag

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Mill Scale & Sludge  
轧制氧化皮+ 污泥

Grinding Dust  
磨削粉

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# 排放 EMISSIONS



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- CO & CO2 排放量重新使用 10...20 次
- 气体排放减少20倍
- 金属完全氧化
- ❖
- 处理所需的电力减少 10~ 50%
- ❖
- 金属磨损寿命延长 2 ~ 4 倍
- 强度相同但重量减轻 ( 20%)
- 将废物用作原材料
- ➔ 排放成本减少!

**表1: 粉尘和气体排放 Table 1: DUST & GAS Emissions**

工业, 每公斤/吨原材料 DUST, kg/tn of raw materials		炉气, m3/h每吨原材料 FURNACE GASES, m3/h per ton of raw materials	
Mazanasu	交流电弧炉 AC ARC Furnace	Mazanasu	交流电弧炉 AC ARC Furnace
2,0-4,0	30-40	20-40	400-500
Mazanasu; 小于 10% 工业 & 炉气			
Mazanasu; less than 10% DUST & GAS			

**表2, 废炉气体的组成, 百分比 %  
Table 2, The composition of waste furnace gases, %**

	CO	CO <sub>2</sub>	H <sub>2</sub>	N <sub>2</sub>	O <sub>2</sub>
Mazanasu	5 - 10	2 - 5	0.1 - 2	40 - 50	15 - 25
交流电弧炉 AC ARC furnace	15 - 25	5 - 10	0,5 - 3,5	61 - 70	3,5 - 10
Mazanasu只有50%的二氧化碳排放量					
Mazanasu has only 50% CO2 Emissions					

**表3, 废气中的粉尘成分, %: Table 3, Dust composition in waste gases, %**

熔炉 / 元件 Type of furnace	Fe <sub>2</sub> O <sub>3</sub>	CaO	MgO	SiO <sub>2</sub>	MnO	Na <sub>2</sub> O- K <sub>2</sub> O
Mazanasu	0... 0.5	Up to 20	Up to 20	Up to 20	Up to 8	Up to 2
交流电弧炉 AC ARC furnace	40-80	Up to 20	Up to 20	Up to 15	Up to 5	Up to 2
Mazanasu, 几乎 100% 恢复 Fe						
Mazanasu, Almost 100% recovery of Fe						

- CO & CO2 Emissions reduced 10...20 times
- Gas emissions reduced by 20 times
- Metal Oxidies fully
- ❖
- Less electricity needed for processing 10- 50%
- ❖
- Metals wear life is 2 - 4 times longer
- Same strength with less weight (20% savings)
- Use waste as raw material
- ➔ EMISSIONS REDUCTION!

# 磨量和废料 MILL SCALE & SCRAP



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## MAZANASU SPAF 0.5/400

- 轧机规模运营，钢铁铸件，罗斯托克，俄罗斯
- 0.5 吨

## MAZANASU SPAF 0.5/400

- Mill Scale Operation, Iron and Steel Castings, Rostock, Russia
- 0.5 ton

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## MAZANASU SPAF 8-13/8000

- 生锈的废料熔化，从 Fe<sub>2</sub>O<sub>3</sub> 高效 Fe 恢复：铸件，俄罗斯
- 标称 8 吨，13 吨钢

## MAZANASU SPAF 8-13/8000

- Rusty Scrap Melting, Efficient Fe recovery from Fe<sub>2</sub>O<sub>3</sub>: Castings, Russia
- 8 ton nominal, 13 ton steel

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# 有毒粉尘处理 TOXIC DUST PROCESSING



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## MAZANASU SC 0.5/400 :

- Dust processing from HiCr Foundry dust and smoke filters
- Machining Chips and Grinding Dust Processing:
- HiCr billets or/and HiCr castings
- Finland

## MAZANASU SC 0.5/400 :

- HiCr 铸造厂粉尘和烟雾过滤器的粉尘处理
- 加工芯片和研磨粉尘处理:
- HiCr钢坯或/和HiCr铸件
- 芬兰







危险成分			
CAS/EC编号 和注册号	成分名称	浓度	率
CAS 1309-37-1	氧化铁	30%	-
CAS 1308-38-9	氧化铬	21%	-
1/2-1995, 1999,	硅	20%	-
1/2-1995, 1995, 1995, 11	氧化锰	7%	-
CAS 1314-13-2	氧化锌	3%	N;R50/53
CAS 1313-99-1 1/2-1995, 1999	一氧化镍	2, 5 %	T;R49-43-48/23-53 (卡奇猫 1)
1/2-204, 2015-11/97	莫利布登姆三重奏	1%	Xn;R36/37-40
CAS 1317-38-0	氧化铜	0,6 %	-
CAS 1317-36-8	铅 (II) 氧化物	0,3 %	T;N R61-20/22-33-50/53-62

Hazardous ingredients			
CAS/ECnumber and registration number	Name of ingredient	Concentration	Rate
CAS 1309-37-1	Iron oxide	30%	-
CAS 1308-38-9	Chromium oxide	21%	-
1/2-1995, 1999,	Silica	20%	-
1/2-1995, 1995, 1995, 11	Manganese oxide	7%	-
CAS 1314-13-2	Zinc oxide	3%	N; R50/53
CAS 1313-99-1 1/2-1995, 1999	Nickel monoxide	2,5 %	T; R49-43-48/23-53 (Carc. cat. 1)
1/2-204, 2015-11/97	Molybdenum trioxide	1%	Xn; R36/37-40
CAS 1317-38-0	Copper oxide	0,6 %	-
CAS 1317-36-8	Lead(II) oxide	0,3 %	T; N R61-20/22-33-50/53-62

来自铸造厂和铸件处理烟尘过滤器的金属粉尘

回收Fe和Cr氧化物，在加工后转化为无有毒物质的FeCr产品



Metal Dust from Foundry and Fetting Shop  
Smoke and Dust Filters

Recovery of Fe and Cr Oxides, Conversion to FeCr products; no toxic substances after processing

# 差异

## DIFFERENCES



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### 中国

- 可用示例以验证是否像播发的那样工作
- 测试操作
- 复制产品?
- 如果好的产品 – 订单如此之大，芬兰公司无法交付



### 芬兰

- 将出售产品，涉及付款（如果收到）
- 不能交付不良产品 = 涉及声誉
- 融资能力差 - 尤其是中小企业
- 朱哈尼，请再次指导问题。我找不到他们
- **Masercata** - 长期关系很重要使用



Masercata Ltd

### CHINA

- Free Samples to verify if working as advertised
- Testing the operation
- Copying the product ?
- If good product - orders so large that Finnish company is not able to deliver



### FINLAND

- Will sell the product, concerned of the payment (if received)
- Can not deliver non performing product - concerned of reputation
- Poor ability for financing - specially with SME
- Long term relationship is important
- **Masercata** - money used for product development and patents

19.11.2020



# MASERCATA LTD



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## 可持续合作伙伴

YOUR PARTNER FOR SUSTAINABLE PROCESSING



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Masercata Ltd



芬兰于1950年1月13日重新注册PR中国  
1950年10月28日建交

Finland regoniced PR China on 13 January 1950  
Diplomatic relations from 28 October 1950

19.11.2020



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更持久、更优质的金属，  
由使用能源更少的废物制  
成；减少排放

**LONGER LASTING, BETTER  
QUALITY METALS MADE FROM  
WASTE WITH LESS ENERGY, LESS  
EMISSIONS**