HARYANA STATE POLLUTION CONTROL BOARD



C-11, SECTOR-6, PANCHKULA Ph-2577870-73 E-mail: hspcbho@gmail.com

Office Order

Whereas the industrial sectors/ projects categorized by the Board under Red, Orange and Green Categories on the basis of directions of Central Pollution Control Board (CPCB) issued in June, 2012, for the purpose of consent management under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 were notified vide policy order Endst. No. 10195-10218 dated 07.03.2014 and published in the gazette on 15.04.2014;

Whereas the CPCB has withdrawn the earlier directions issued in June, 2012 in the context of categorization of industries as Red, Orange and Green and revised the categorization of industrial sectors/projects under Red, Orange, Green and white based upon the range of pollution index through modified directions issued under section 18 (1) (b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 vide letter no. B-29012/ESS(CPA)/2015-16/8571 dated 07.03.2016;

Whereas CPCB vide above said modified directions, has directed all the State Pollution Control Boards (SPCBs) to adopt the revised criteria of categorization of industrial sectors and revised lists of Red, Orange, Green and White categories of industrial sectors as mentioned in the final report attached with the above said directions and shall be used by the SPCBs for consent management and inventorization of industries under Red, Orange, Green and White categories and siting of industries shall be only in confirming areas;

Whereas it has been provided in the final document on revised classification of industrial sectors appended with the above modified directions of CPCB that there shall be no necessity of obtaining the consent to operate for white category of industries and an intimation to concerned SPCB shall suffice and no Red category of industries shall normally be permitted in the ecologically fragile area/ protected area;

Whereas it has also be prescribed in the above said CPCB modified directions that any further addition of any new or left over industrial sector and their categorization which is not listed in the revised list of Red, Orange, Green and White industrial sectors, shall be done at the level of concerned SPCB/PCC by a committee headed by the Member Secretary and comprising of two Senior cadre Engineers/Scientists of the SPCB following revised criteria & guidelines as detailed in the attached document and no concurrence of CPCB shall normally be required;

Whereas for compliance of the above provisions a committee comprising of 2 senior officers headed by Member Secretary of the Board, was constituted vide order Endst. No. 6862 dated 03.05.2016 to identify and inventorize the state specific left over industrial sectors and their categorization which are not listed in the revised list of Red, Orange, Green and White categories industrial sectors finalized by the CPCB; and,

Whereas based on the revised criteria of categorization of industrial sectors and revised lists of Red, Orange, Green and White categories of industrial sectors as mentioned in the final report attached with the above said modified directions of the

CPCB and report and recommendations submitted by the committee on 01.07.2016, consolidated list of industrial sectors/projects covered under Red, Orange, Green and White Categories, have been finalized which is at Annexure-I to IV respectively and has been approved by the Competent Authority to adopt for the purpose of consent management under Water Act, 1974 and Air Act, 1981;

It is hereby ordered that in supersession of the earlier categorization of industrial sectors/ projects under Red, Orange and Green Categories done by the Board vide policy order Endst. No. 10195-10218 dated 07.03.2014 published in the gazette on 15.04.2014, the revised list of industrial sectors/projects finalized and categorized under Red, Orange, Green and White categories at Annexure-I to IV respectively shall be applicable in the Board for the purpose of consent management and inventorization of industries under Red, Orange, Green and White categories under Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 and siting of industries shall be only in confirming areas and there shall be no necessity of obtaining the consent to operate for white category of industries and an intimation to concerned SPCB shall suffice and no Red category of industries shall normally be permitted in the ecologically fragile area/ protected area.

These orders shall come into force with immediate effect.

Dated Panchkula, the 6th July, 2016

S.N. Roy, IAS Chairman

Endst. No. HSPCB/PLG-135/2016/546-579

Dated: 14 07 16

A copy of the above is forwarded to the following for information and necessary action:

- 1. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi in reference to his letter no. B-29012/ESS(CPA)/2015-16/8571 dated 07.03.2016. The list of industries identified in each category as per the revised categorization, operating in the State, shall be submitted separately.
- 2. The Director General, Industries & Commerce Department, Haryana.
- All Branch Incharges in Head Office.
- All Regional Officers in the field.
- 5. EE-IT. He is requested to make necessary amendments in the categorization of the industrial sectors in the OCMMS as per the revised list of categorization of industrial sectors as mentioned above.
- 6. PS to Chairman/ PA to Member Secretary for information of the officers.
- 7. Nodal Officer (IT) for uploading the orders on the website of the Board.

DA/As above.

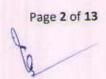
resmec Sr. Environmental Engineer-I HQ) For Chairman

Final List of Red Category of Industrial Sectors

Sr. No.	Industry Sector
1.	Isolated storage of hazardous chemicals (as per schedule of manufacturing, storage of hazardous chemicals rules ,1989 as amended)
2.	Automobile Manufacturing (integrated facilities)
3.	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Spent cleared metal catalyst containing copper,, Spent cleared metal catalyst containing zinc
4.	Manufacturing of lubricating oils ,grease and petroleum based products
5.	DC Set of canacity > 5 MVA
6.	Industrial carbon including electrodes and graphite blocks, activated
7.	Lead acid battery manufacturing(excluding assembling and charging of lead-acid battery in micro scale)
8.	Phosphate rock processing plant
9.	Power generation plant [except Wind and Solar renewable power plants of all capacities and Mini Hydel power plant of capacity <25MW]
10.	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Spent catalyst containing nickel, cadmium, Zinc, copper, arsenic, vanadium and cobalt,
11.	Processes involving chlorinated hydrocarbons
12.	Sugar (excluding Khandsari)
13.	Fibre glass production and processing (excluding moulding)
14.	Fire crackers manufacturing and bulk storage facilities
15. Industries engaged in recycling / reprocessing/ recovery Hazardous Waste under schedule iv of HW(M, H& TBM) rule Items namely - Dismantlers Recycling PlantsComponent electrical and electronic assembles comprising accumulators batteries included on list A, mercury-switches, activated glass from cathode-ray tubes and other activated glass and PCB-or any other component contaminated with Schedule 2 contaminated wi	1: 1
16.	
17.	
18.	1 1 11 1111 1
19.	4 7 4 7 4 7 4 7 4 7 4 7 7 4 7 7 7 7 7 7
20	



	and intermediate
1	Manufacturing of paints varnishes, pigments and intermediate excluding blending/mixing)
22.	Organic Chemicals manufacturing
23.	Airports and Commercial Air Strips
24	A sheetos and ashestos based industries
25.	Basic chemicals and electro chemicals and its derivatives including manufacturing of acid
26.	Cement
27.	Chlorates, per-chlorates & peroxides
28.	Chlorine, fluorine, bromine, iodine and their compounds
29	Dyes and Dye- Intermediates
30.	Health-care Establishment (as defined in BMW Rules)
31.	Hotels having overall waste-water generation @ 100 KLD and more.
33.	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Lead acid battery plates and other lead scrap/ashes/residues not covered under Batteries (Management and Handling) Rules, 2001. [* Battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes". Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains". Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Integrated Recycling PlantsComponents of waste electrical and electronic assembles comprising accumulators and other batteries included on list A, mercury-switches, activated glass cullets from cathode-ray tubes and other activated glass and PCB-capacitors, or any other component contaminated with Schedule 2 constituents (e.g. cadmium, mercury, lead, polychlorinated biphenyl) to an extent that they exhibit hazard characteristics indicated in part C of this
	Schedule.
34.	Manufacturing of glue and gelatin
35.	Mining and ore beneficiation
36.	Nuclear power plant
37.	Pesticides (technical) (excluding formulation)
38.	Photographic film and its chemicals
39.	Railway locomotive work shop/Integrated road transport workshop/Authorized service centers
40.	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing and colouring
41.	Chlor Alkali
42.	Ship Breaking Industries
43.	Oil and gas extraction including CBM (offshore & on-shore extraction through drilling wells)
44.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1



45.	Tanneries
46.	Ports and harbour, jetties and dredging operations
47.	Synthetic fibers including rayon ,tyre cord, polyester filament yarn
48.	Thermal Power Plants
49.	Slaughter house (as per notification S.O.270(E)dated 26.03.2001)and meat processing industries, bone mill, processing of animal horn, hoofs and other body parts
50.	Aluminium Smelter
51.	Copper Smelter
52.	Fertilizer (basic) (excluding formulation)
53.	Iron & Steel (involving processing from ore/ integrated steel plants) and or Sponge Iron units
54.	Pulp & Paper (waste paper based units with bleaching process to manufacture writing & printing paper)
55.	Zinc Smelter
56.	Oil Refinery (mineral Oil or Petro Refineries)
57.	Petrochemicals Manufacturing (including processing of Emulsions of oil and water)
58.	Pharmaceuticals
59.	Pulp & Paper (Large-Agro + wood) , Small Pulp & Paper (agro based- wheat straw/rice husk)
60.	Distillery (molasses / grain / yeast based)
61.	Induction Furnace clubbed with AOD Furnace
62.	Synthetic detergents and soaps having waste water generation more than 100 KLD (excluding formulation)
63.	Automobile servicing, repairing and painting having waste water
64.	Building and construction project more than 20,000 sq. m built up area having waste water generation more than 100 KLD
65.	Ceramics and Refractories having coal consumption more than 12 MT
66.	Fermentation industry including manufacture of yeast, beer, distillation of alcohol (Extra Neutral Alcohol) having discharge > 100 KLD
67.	Lead metal extraction involving different furnaces through melting,
68.	to the second of
69.	Manufacturing of lead glass
70.	Non-alcoholic beverages (soft drink) & bottling of alcohol/non alcoholic products having waste-water generation > 100 KLD.
71	
72	Parboiled Rice Mills having waste-water generation > 100 KLD or fue consumption > 12 MTD or both.
73	A COUNTY TO THE TAXABLE PARTY OF THE PARTY O
	Sewage treatment plants having capacity 100 KLD or more



	Industrial estates/ parks / complexes/ areas/ export processing zones/ SEZs/ Biotech parks/ leather complex
76.	Units engaged in the activities of handling and management of Hazardous Waste as defined in Hazardous and other Wastes (M & TM) Rules, 2016, other than those covered under any of the category of industrial sectors, such as use, treatment, processing, recovery, preprocessing, co-processing, utilization etc. of the hazardous and other wastes
77.	Recycling of used lead acid batteries



Annexure-II

Final List of Orange Category of Industrial Sectors

Sr. No.	Industry Sector
1.	Dismantling of rolling stocks (wagons/ coaches)
2.	Bakery and confectionery units with production capacity > 1 TPD. (With
۷٠	avens / furnaces)
3.	Chanachur and ladoo from puffed and beaten rice(muri and shira) using
250	husk fired oven
4.	Coated electrode manufacturing Coated electrode manufacturing / Reel
5.	manufacturing
6.	Flakes from rejected PET bottle
7.	Food and food processing including fruits and vegetable processing
8.	Jute processing without dyeing
9.	Manufacturing of silica gel
10.	Manufacturing of tooth powder, toothpaste, talcum powder and other
11.	Printing or etching of glass sheet using hydrofluoric acid
12.	Silk screen printing, sari printing by wooden blocks
13.	Synthetic detergents and soaps(excluding formulation)
14.	Thermometer manufacturing
15.	Cotton spinning and weaving (medium and large scale)
16.	Almirah Grill Manufacturing (Dry Mechanical Process)
17.	Aluminium & copper extraction from scrap using oil fired furnace (dry
18.	Automobile servicing, repairing and painting (excluding only fue dispensing)
19.	Avuryedic and homeopathic medicine
20.	Brickfields (excluding fly ash brick manufacturing using lime process)
21.	1 00 000
22.	
23.	
24.	
25.	
26.	
27.	
28.	1100
29.	
30.	
31.	
32	



33.	Formulation/pelletization of camphor tablets, naphthalene balls from camphor/ naphthalene powders.
34.	Glass ceramics, earthen potteries and tile manufacturing using on and gas fired kilns, coating on glasses using cerium fluorides and magnesium fluoride etc.
35.	Gravure printing, digital printing on flex, vinyl
36.	Heat treatment using oil fired furnace (without cyaniding)
37.	Hat mix plants
38.	Hotels (< 3 star) or hotels having > 20 rooms and less than 100 rooms.
39.	Les aream
40.	Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 -
41.	Industries engaged in recycling / Teprocessing/ Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Brass Dross ,, Copper Dross,, Copper Oxide Mill Scale,, Copper Reverts, Cake & Residues,, Waste Copper and copper alloys in dispersible form,, Slags from copper processing for further processing or refining ,, Insulated Copper Wire,, Scrap/copper with PVC sheathing including ISRI-code material namely "Druid" ,, Jelly filled Copper cables ,, Zinc Dross-Hot dip Galvanizers SLAB,, Zinc Dross-Bottom Dross,, Zinc ash/Skimming arising from galvanizing and die casting operations,, Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining,, Zinc ash and residues including zinc alloy residues in dispersible from
42.	Industry or processes involving foundry operations
43.	Lime manufacturing (using lime kiln)
44.	the state of the s
9780	manufacturing
45.	Manufacturing of glass
46.	14.
47	
48	
49	
50	Mechanized laundry using oil fired boiler
51	to the state of th
52	New highway construction project
53	to to the contract of all and all all and all all and all all all and all all all and all all all all all all all all all al
54	Paint blending and mixing (Ball mill)
55	Paints and varnishes (mixing and blending)
56	. Ply-board manufacturing(including Veneer and laminate) with oil fired boiler / thermic fluid heater(without resin plant)
57	,一直是一个大型,一直是一个大型,一直是一个大型,一直是一个大型,一直是一个大型,一直是一个大型,一直是一个大型,一直是一个大型,一个大型,一个大型,一个大型, 第一个大型,一个大型,一个大型,一个大型,一个大型,一个大型,一个大型,一个大型,
	. Printing ink manufacturing



FO	Printing press
59.	Reprocessing of waste plastic including PVC
60.	Rolling mill (oil or coal fired) and cold rolling mill
61.	Spray painting, paint baking, paint shipping
62.	Steel and steel products using various furnaces like blast furnace /open
63.	hearth furnace/induction furnace/arc furnace/submerged arc furnace
	hearth furnace/induction furnace/arc furnace/
	/basic oxygen furnace /hot rolling reheated furnace
64.	Stone crushers Surgical and medical products including prophylactics and latex
65.	Surgical and medical products including propriyments
66.	Tephlon based products
67.	Thermocol manufacturing (with boiler) Tobacco products including cigarettes and tobacco/opium processes
68.	Tobacco products including cigarettes and tobacco openin process only
69.	Transformer repairing/ manufacturing (dry process only)
70.	Tyres and tubes vulcanization/ hot retreating
71.	Vegetable oil manufacturing including solvent extraction and refinery
	/hydrogenated oils
72.	Wire drawing and wire netting
73.	Dry cell battery (excluding manufacturing of electrodes) and assembling &
	charging of acid lead battery on micro scale Pharmaceutical formulation and for R & D purpose (For sustained release/
74.	Pharmaceutical formulation and for R & D purpose (101 sustained 101 sust
	extended release of drugs only and not for commercial purpose)
75.	Synthetic resins
76.	Synthetic rubber excluding molding
77.	Cashew nut processing
78.	
79.	
80.	Foam manufacturing
81.	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Used Oil - As per specifications prescribed from time to
	time.
82.	Industries engaged in recycling / reprocessing/ recovery/reuse of
	Hazardous Waste under schedule iv of HW(M, H& TBM) rules, 2008 - Items namely - Waste OilAs per specifications prescribed from time to
	time.
83.	Producer gas plant using conventional up drift coal gasification (linked to
00.	rolling mills glass and ceramic industry refectories for dedicated fuel
84.	supply) Health care establishments (As defined in BMW Rules) having waste water
	generation less than 100 KLD without incinerator
85	
86	workshop/Authorized service centers (having waste-water generation < 100 KLD)
87	- 1/
88	
89	



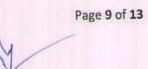
90.	Formulation of pesticides/ insecticides
91.	Recycling / Pyrolysis plants of waste pneumatic tyres/tyre scrap
92.	Screening plants
93.	Surgical cotton industries
94.	Inorganic Chemical Compounds such as Chlorides/Sulphates/Niterates/Oxides/Flourides/ Stearates of metals/Cations
95.	Sodium and other silicates manufacturing
96.	Cotton coated fabrics including printing and lamination (Rexene)
97.	Friction dust
98.	Brake lining/ Disc brake pad
	Gil intel maneffin way / plasticizers
100	Sewage treatment plants having capacity 10 KLD or more but less than
101	Infrastructure development projects having overall liquid Waste generation 100 KLD or more
102	Dismantling of E-Waste

1

Annexure-III

Final List of Green Category of Industrial Sectors

Sr. No.	Industry Sector
1.	Aluminium utensils from aluminium circles by pressing only (dry mechanical operation)
2.	the second this medicines (without poller)
3. Bakery /confectionery /sweets products (with production capacity)	Bakery /confectionery /sweets products (with production capacity 'trib
4.	p: 1 1 - i ante d DD film along with metalizing operations
5.	n: 1 - mettee (cun drang) without listing toxic hazardous wastes
6.	Blending of melamine resins & different powder, additives by physical
7.	Brass and bell metal utensils manufacturing from circles(dry mechanical operation without re-rolling facility)
8.	Condy
9.	Cardboard or corrugated box and paper products (excluding paper or
10.	Carpentry & wooden furniture manufacturing (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner steel saw cutting circular blade, etc.
11.	Cement products (without using asbestos / boiler / steam curing) like pipe ,pillar, jafri, well ring, block/tiles etc.(should be done in closed covered shed to control fugitive emissions)
12.	Ceramic colour manufacturing by mixing & blending only (not using boiler and wastewater recycling process)
13.	
14.	
15.	
16.	
17.	The state of the s
18.	Digital printing on PVC clothes
19.	C Country law law layella
20.	Flour mills (dry process)
21.	electrical kiln or not involving fossil fuel kiln
22.	Glue from starch (physical mixing) with gas / electrically operated over
23	Gold and silver smithy (purification with acid smelting operation and sulphuric acid polishing operation) (using less or equal to 1 litre of sulphuric acid nitric acid per month)
24	Heat treatment with any of the new technology like ultrasound probe induction hardening, ionization beam, gas carburizing etc.
25	Insulation and other coated papers (excluding paper or piper manufacturing)
26	. Leather foot wear and leather products (excluding tanning and hide



	processing except cottage scale)
27.	Lubricating oil, greases or petroleum based products (only bleatens
20	mormal temperature) Manufacturing of pasted veneers using gas fired boiler or thermic fluid
28.	heater and by sun drying
	ou : U Chami and extraction (no hydrogenation / reinning)
29.	Packing materials manufacturing from non asbestos fibre, vegetable fibre
30.	
	yarn Phenyl/toilet cleaner formulation and bottling
31.	Polythene and plastic processed products manufacturing (virgin plastic)
32.	Polytnene and plastic processed products
33.	Poultry, Hatchery and Piggery
34.	Power looms (without dye and bleaching) Puffed rice (muri) (using gas or electrical heating system)
35.	Putted rice (muri) (using gas of electrical rectangles)
36.	Pulverization of bamboo and scrap wood
37.	Ready mix cement concrete
38.	Reprocessing of waste cotton
39.	Rice mill (Rice hullers only)
40.	Rolling mill (gas fired) and cold rolling mill
41.	Rubber goods industry (with gas operated baby boiler)
42.	Saw mills
43.	Soap manufacturing (hand made without steam boiling / boiler)
44.	Spice grinding (20 HP motor)
45.	Spice grinding (20 hp motor)
46.	Steel furniture without spray painting
47.	Steeping and processing of grains
48.	Tyres and tube retreating (without boilers)
49.	Chilling plant and ice making without using ammonia
50.	CO2 recovery
51.	Distilled water (without boiler) with electricity as source of heat
52.	Hotels (up to 20 rooms and without boilers)
53.	Manufacturing of optical lenses (using electrical furnace)
54.	Mineralized water
55.	Tamarind powder manufacturing
56.	Cutting, sizing and polishing of marble stone
57.	Emery powder (fine dust of sand) manufacturing
58.	Flyash export, transport & disposal facilities
59.	
60.	Oil and gas transportation pipeline
61.	Seasoning of wood in steam heated chamber
62.	
63.	Tea processing (with boiler)
64.	Modular wooden furniture from particle board, MDF< swan timber etc. Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making
	(Without boiler)
65	LPG bottling plants
66	Sewage treatment plants having capacity less than 10 KLD
67	the learning original liquid Maci



	generation less than 100 KLD
68.	Industrial inorganic gases namely- a) Chemical gas- Acetylene, hydrogen, chlorine, fluorine, ammonia, sulphur dioxide, ethylene, hydrogen-sulphide, phosphine b) Hydrocarbon gases- Methane, ethane, propane
69.	Automobiles manufacturing outsourcing all of the polluting activities.
70.	the second of the second equipments

Annexure-IV

Final List of White Category of Industrial Sectors

Sr. No.	Industry Sector
1.	Assembly of air coolers /conditioners ,repairing and servicing
2.	Assembly of air coolers / conditioners , repeating Assembly of bicycles ,baby carriages and other small non motorizing vehicles
0	Bailing (hydraulic press)of waste papers
3.	p: 6 dillegand his posticides without using morganic chemicals
4. 5.	Biscuits trays etc from rolled PVC sheet (using automatic vacuum forming machines)
C	DI II and an alring of tea
7.	Block making of printing without foundry (excluding wooden block
8.	Chalk making from plaster of Paris (only casting without boilers etc.
9.	Compressed oxygen gas from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation
10.	Cotton and woolen hosiers making (Dry process only without any dying
11.	Diesel pump repairing and servicing (complete mechanical dry process)
12.	Electric lamp (bulb) and CFL manufacturing by assembling only
13.	Electrical and electronic item assembling (completely dry process)
14.	Engineering and fabrication units (dry process without any near
15.	Flavoured betel nuts production/ grinding (completely dry mechanica operations)
16.	Fly ash bricks/ block manufacturing
17.	A The state of the
18.	t ti ti fram elegatubes
19.	t t //t ' with machine only
20.	Ground nut decorticating
21.	Handloom / carnet weaving (without dving and bleaching operation)
22.	t it t i / machine and light motor
23.	I manufacture the control of the con
24	The second of th
25	The state of the s
26	
27	
28	The state of the s
29	The state of the s
30	Paper pins and u clips
31	/ Jan an and a process
32	Rope (plastic and cotton)
33	t t t t t a consto observe



	i l ser apparatus manufacturing unit
34.	Solar module non conventional energy apparatus manufacturing unit
35.	Solar power generation through solar photovoltaic cell, while power and
36.	Surgical and medical products assembling only (not involving emident /
37.	1 11 6-1 sutlets (only dispensing)
	Diesel generator sets having total capacity I MVA or less and equipped
39.	Almirah, Grill Manufacturing without painting operation (Dry Mechanical Process)

