

NML Processes and Patents

NML Processes Released for Commercial Exploitation

1. Production of Carbon-free Ferro-alloys by Aluminothermic Reactions (I. P. No. 65231)
2. Production of Iron Powder for Autogenous cutting
3. Production of Liquid Gold
4. An Improved process for production of Electrolytic Manganese Metal (I. P. No. 49355)
5. An improved process for production of Mn salts from Manganese ores and its application for regeneration of spent electrolyte MnSO_4 baths (I. P. No. 48499)
6. An improved process for Electrolytic production of high purity Manganese dioxide (I. P. No. 47982)
7. Hot-Dip Aluminising of Ferrous Materials (I. P. Nos. 55289, 57938 and 65230)
8. Production of improved Graphite Crucibles (carbon bonded) (I. P. No. 58869)
9. Production of improved Graphite Crucibles (clay bonded) (I. P. No. 62352)
10. Production of flux for Submerged Arc-Welding (I. P. No. 68171)
11. Electroplating of metals on Aluminium or its Alloys (I. P. No. 51524)
12. Chemical polishing of Aluminium (I. P. No. 47401)
13. Metallisation of Non-conductors (I. P. No. 45579)
14. Brass plating from Non-cyanide Bath (I. P. No. 45565)
15. Production of Dense Carbon Aggregate suitable for being used as base material for Carbon products in general and Soderberg paste in particular (I. P. Nos. 62938 and 65696)
16. Production of Ceramic Magnets
17. Production of Electrical Resistance Alloys for Heating Elements (Released on exclusive basis)
18. Production of Alnico type Permanent Magnets (Released on exclusive basis)
19. Technology of production of Thermostatic Bimetals (Released on exclusive basis)
20. Production of Electrolytic Copper Powder (I. P. No. 76997) (Released on exclusive basis)
21. Production of modified Aluminium alloys containing silicon (I. P. No. 76415) (Released on exclusive basis)

NML Processes Ready for Commercial Exploitation.

1. Production of High Purity Sponge Iron

2. Improvements in or relating to Magnesite Refractories (I. P. No. 83652)
3. Production of Mullite Refractories from Kyanite (I. P. No. 58553)
4. Production of Chemically bonded metal-clad or unclad basic refractories (I. P. No. 65610)
5. Production of completely stabilised Dolomite refractories (I. P. No. 61981)
6. Production of improved Magnesium Silicate Refractories (I. P. No. 57884)
7. Production of refractory compositions containing Non-refractory Chrome Ores and Refractory products (I. P. No. 68174)
8. Production of Vanadium pentoxide and Ferro-Vanadium from Vanadium bearing Titaniferous Magnetites.
9. Production of Metal Powders by Atomisation of Molten Metals.

List of Patents Taken and Applied for by National Metallurgical Laboratory.

1. Stable Castable Suspensions of Non-Plastic Aluminosilicate Materials & Methods of making the same
2. An improved method for removal of Iron and upgrading Ferruginous chrome ores and other low grade ferruginous ores (I. P. No. 106906)
3. A process for the conversion of molten Iron of various compositions to different grades of steel by employing air for oxidising (I. P. No. 105895)
4. An improved method for the recovery of metallic values from waste metallic fines (I. P. No. 102483)
5. A method for recovering volatile metals from their waste metallic fines (I. P. No. 102481)
6. A novel method of separating iron from ilmenite and its application in the upgrading of ferruginous ores (I. P. No. 96661)
7. Production of High Purity Iron (I. P. No. 96017)
8. An improved device for the continuous hot-dip coating of metallic strip and wire (I. P. No. 94769)
9. An improved device for the isolation of dross in molten metallic baths during continuous hot-dip processing of strip or wire (I. P. No. 94768)
10. An improved cast iron pot for the melting and holding of non-ferrous molten metal in general, aluminium and zinc in particular (I. P. No. 94767)
11. Improvement in or relating to a precision temperature controller for use with electrical resistance furnaces up to 1600°C (I. P. No. 91134)

12. Improvements in or relating to Electrolytic cells (I. P. No. 84670)
13. A method for reconditioning the coated magnesium powders (I. P. No. 83968)
14. Improvements in or relating to magnesite refractories (I. P. No. 83652)
15. An improved Dross Shield (I. P. No. 83651)
16. An improved melt pot and furnace for the continuous hot dip aluminizing of steel strip and wire (I. P. No. 82446)
17. An improved jacketed electrolytic cell for the electro-deposition of metals and metallic oxides in general and manganese dioxide in particular (I. P. No. 82191)
18. Improvements in or relating to devices for the conversion of pig irons into high grade steels (I. P. No. 81403)
19. Improvements in or relating to electro-deposition of metals by direct current electrolysis of aqueous solutions containing metal ions. (I. P. No. 81402)
20. An improved device for the continuous vapour phase degreasing of metallic wire and strip (I. P. No. 79598)
21. Improvements in a continuous vertical counter current solid gas reactor (I. P. No. 79597)
22. Improvements in or relating to the production of copper powder by electrolytic process (I. P. No. 76997)
23. Improvement in or relating to the Modification of Aluminium Alloys containing Silicon (I. P. No. 76415)
24. A pneumatic or such other forge hammer adopted for the manufacture of bricks or blocks out of ceramic mixes (I. P. No. 68401)
25. Refractory compositions containing non-refractory chrome ore and refractory products made therefrom (I. P. No. 68174)
26. Compositions and method of making welding flux (I. P. No. 68171)
27. Improvements in or relating to the production of chemically bonded metal clad or unclad basic refractories (I. P. No. 65610)
28. An improved method for the production of chromium Manganese alloys by Alumino Thermic Reaction (I. P. No. 65231)
29. Improvements in or relating to hot dip aluminizing of steel (I. P. No. 65230)
30. Refractory compositions comprising graphite and alumino silicate materials and glazes to render such compositions resistant to oxidation (I. P. 62352)
31. An improved method for producing nitrided manganese (I. P. No. 62338)
32. A process for making completely stabilised dolomite refractories (I. P. No. 61981)
33. New Stainless Steels and methods of preparing them (I. P. Nos. 61978, 61979, 61980)
34. Refractory compositions comprising graphite and silicon carbide (I. P. No. 58869)
35. Improvements in or relating to mullite refractories from kyanite (I. P. No. 58553)
36. Improvements in or relating to the electro-plating of metals on aluminium or its alloys (I. P. No. 58353)
37. An improved method for the production of titanium tetra-chloride from Ilmenite (I. P. No. 58244)
38. Aluminising of Iron & Steel (I. P. No. 57938)
39. Improvements in or relating to magnesium silicate refractories and use of the same (I. P. No. 57884)
40. A process for the hot-dip aluminising of ferrous materials (I. P. No. 55289)
41. An improved method for the production of Manganese sulphate from Manganese ores and its application for the generation of the spent electrolytic manganese sulphate bath (I. P. No. 53390)
42. Preparation of aluminium silicon alloys (I. P. No. 52335)
43. A process for the concentration of Manganese ores high in iron (I. P. No. 51625)
44. Improvements in or relating to the electro-plating of metals on Aluminium or its alloys (I. P. No. 51524)
45. An improved process for the production of electrolytic manganese metal (I. P. No. 49355)
46. An improved method for the production of manganese salts from manganese ores & its application for the regeneration of the spent electrolytic manganese sulphate baths (I. P. No. 48499)
47. An improved process for electrolytic production of high purity manganese dioxide (I. P. No. 47982)
48. Chemical polishing of Aluminium (I. P. No. 47401)
49. Improvements in or relating to metallisation of non-conductors (I. P. No. 45579)
50. Improvements in or relating to brass plating (I. P. No. 45565)