

(12) PATENT APPLICATION PUBLICATION

(19) INDIA

(22) Date of filing of Application :25/01/2024

(21) Application No.202431005303 A

(43) Publication Date : 23/02/2024

(54) Title of the invention : A PROCESS FOR THE PRODUCTION OF HYDROGEN FROM ALUMINIUM WASTE

(51) International classification :B09B0003000000, B02C0019000000, B30B0009120000, C01B0003260000, C22B0001000000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD
Address of Applicant :Dhanbad - 826004, Jharkhand, India
Dhanbad -----
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Arunkumar Samanta
Address of Applicant :Department of Chemical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

2)Chitrang Jayantibhai Lad
Address of Applicant :Department of Chemical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

3)Babuni Prasad
Address of Applicant :Department of Chemical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

4)Tapas Kumar Mondal
Address of Applicant :Department of Chemical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

5)Sandipan Kumar Das
Address of Applicant :Department of Mechanical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

6)Soumyajit Sen Gupta
Address of Applicant :Department of Chemical Engineering,
Indian Institute of Technology (Indian School of Mines),
Dhanbad, Dhanbad - 826004, Jharkhand, India Dhanbad -----

(57) Abstract :

The present invention relates to a process for the production of hydrogen from aluminium waste comprising preprocessing the aluminium waste involving the steps of sorting, shredding the waste and screening to obtain shredded waste, followed by decoating the shredded waste, washing with acid followed by water and drying to obtain processed waste, subjecting the processed waste to reaction in the presence of an alkali and reaction promoters at a temperature in the range of 60 to 90 °C for 2 to 4 min, with constant stirring, to obtain hydrogen gas, cooling the gas to remove moisture to obtain enriched hydrogen gas.

No. of Pages : 16 No. of Claims : 10