

METHANATION CATALYST OF CARBON DIOXIDE, PREPARATION METHOD AND USAGE OF SAME

ABSTRACT

A methanation catalyst of carbon dioxide, a preparation method and a usage of the same. The catalyst is prepared by high-temperature calcination of ash of a biomass power plant mixed with a metal nickel compound, the component of the metal nickel being 2-20% by weight. The preparation method comprises: 1) preparing the metal nickel compound as a water solution with a mass concentration being 5-30%; 2) calcinating the ash of the biomass power plant in the temperature of 300-400°C for 20-40min; 3) converting raw material proportions according to the weight percentage of the nickel component in the catalyst, mixing the water solution of the metal nickel compound prepared in the step 1) and the calcinated ash of the biomass power plant in the step 2), stirring and turning over for 5-10h for uniform impregnation; 4) drying the impregnated ash of the biomass power plant in the temperature of 110-150°C for 0.5-1.5h; and 5) calcinating the dried ash of the biomass power plant in the temperature of 400-500°C for 3-6h. The catalyst can not only make waste profitable, but also has excellent catalytic activity, which can be used to catalyze a carbon dioxide hydrogenation reaction to impel the carbon dioxide to be converted into methane, and is especially applicable in resource recycling of the ash of the biomass power plant.