Title (en)

Process and apparatus for treating the surface of a substrate with an electrical discharge between two electrodes in a gas mixture

Title (de)

Verfahren und Vorrichtung zur Oberflächenbehandlung von Substraten durch elektrische Entladungen zwischen zwei Elektroden in einer Gasmmischung

Title (fr)

Procédé et dispositif pour le traitement de surface d'un substrat par décharge électrique entre deux électrodes dans un mélange gazeux

Publication

EP 0914876 A1 19990512 (FR)

Application

EP 98402730 A 19981102

Priority

FR 9713910 A 19971105

Abstract (en)

The equipment treats a moving substrate (3) with an electrical discharge. Each processing stage (1,2) has two roller electrodes (9,11) and an injector to deliver a gas mixture between the rollers. The substrate (3) is moved first between the two roller electrodes against one roller or one surface treatment followed by a second pass against the other roller or other surface treatment. In an Independent claim an apparatus to give a surface treatment to a substrate (3) through an electrical discharge in a gas mixture forms a byproduct to be deposited on one of the roller electrodes, to be transferred to the substrate surface. The roller electrodes (9,11) are parallel, with a gap between the pairs to take the mechanisms (19,21-23) to guide the substrate (3) through the processing stages and deflect the substrate against the roller surfaces. PREFERRED FEATURES The width of the substrate to be treated is at least equal to the length of the space between the electrodes where there is an electrical discharge within a gas mixture. The deflection rollers (19,21-23) guide the substrate (3) through the stages (1,2), and in sequence, to present their surfaces for treatment. The length of at least one roller electrode is set to match the width of the substrate. The injector for the gas mixture matches the substrate width, and extends from one end of the roller electrode to the other end, with an adjustment to set the injector width by blocking the jet outlet length as required. An extractor removes used gas from the apparatus, together with air carried in by the substrate, positioned under a pair of deflection rollers (19,21) and over a pair of roller electrodes (9,11). The extractor has a suction block for each deflection roller and an intermediate block between them, with a concave surface matching the curvature of the deflection roller. It has a suction opening to extract the gas atmosphere between the roller and the block, into the suction block.

Abstract (fr)

Dispositif pour le traitement de surface d'un substrat (3) par décharge électrique entre deux électrodes dans un mélange gazeux susceptible de générer des sous-produits (par exemple des poudres) pouvant se déposer sur les électrodes, dans lequel l'une (9) des électrodes est un rouleau sur lequel peut être appliqué le substrat, des moyens étant prévus pour entraîner le rouleau et le substrat en rotation et pour injecter le mélange gazeux entre les électrodes, le dispositif étant remarquable en ce que la seconde électrode est un rouleau-électrode (11) sur lequel le substrat en défilement peut également être appliqué, et qui est disposé parallèlement à l'autre rouleau (9) à un intervalle approprié. Grâce à cet agencement, le substrat (3) protège chaque électrode (11) et évite qu'elle ne soit recouverte de poudre en cours de traitement, ainsi que l'encrassement correspondant, ce qui permet un fonctionnement en continu du dispositif. <IMAGE>

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