~~Process and Device for Embossing~~

Claims

1. Process for embossing a structure in an embossing material (4), applied on a substrate (1), with the following process steps, in particular the following sequence:

- Embossing the embossing material (4) by an embossing die (2),
- Hardening the embossing material (4),

~~characterized in that~~ wherein at least the substrate (1) and/or the embossing die (2) and/or at least one heating layer (3) as applied liquid film in the form of a molecular dipolar compound arranged between the substrate (1) and the embossing material (4) and/or between the embossing die (2) and the embossing material (4) are at least at times irradiated by means of microwaves for hardening the embossing material (4).

2. Process according to Claim 1, wherein the microwaves used for irradiation are electromagnetic waves with a frequency of between 0.01 GHz and 100 GHz, in particular between 0.1 and 50 GHz, preferably between 1 and 10 GHz, even more preferably between 2 and 5 GHz, and most preferably from about 2.45 GHz.

3. Process according to one of the preceding claims, wherein as a heating layer (3), ~~a molecular dipolar compound, in particular~~ deionized water~~,~~ is used~~, in particular with a layer thickness of less than 10 monolayers, preferably less than 5 monolayers, and even more preferably less than 3 monolayers~~.

4. Process according to one of the preceding claims, wherein the substrate (1) has a molar heating capacity of between 0.001 J/gK and 100 J/gK, more preferably between 0.01 J/gK and 10 J/gK, even more preferably between 0.1 J/gK and 1 J/gK, and most preferably between 0.7 and 0.8 J/gK.

5. Process according to one of the preceding claims, wherein the substrate (1) has a thickness of between 10,000 μm and 0.1 μm, preferably between 1,000 μm and 1 μm, and even more preferably between 100 μm and 10 μm, and/or it has a diameter of more than 1".

~~6. Device for embossing a structure in an embossing material (4) applied on a substrate (1):~~

- ~~An embossing die (2) for embossing the embossing material (4),~~
- ~~Hardening means for hardening the embossing material (4),~~

~~wherein the device has microwave irradiating means for irradiating at least the substrate (1) and/or the embossing die (2) and/or at least one heating layer arranged between the substrate (1) and the embossing material (4) and/or between the embossing die (2) and the embossing material (4) for hardening the embossing material (4) by means of microwaves.~~

~~7. Device according to Claim 6, wherein the device has application means for applying a heating layer (3) between substrate (1) and embossing material (4), in particular with a layer thickness of less than 10 monolayers, preferably less than 5 monolayers, and even more preferably less than 3 monolayers.~~

~~8. Device according to Claim 6 or 7, wherein the device has separating means for separating the embossing die (2) from the embossing material (4).~~