**Coating Foods and Pharmaceuticals with Shellac Edible Polymer Using Environmentally Friendly Process**

[](http://arp.research.psu.edu/patents/technologies/2344/technologyImage)

Fig. 1: 50/50 (ethanol/shellac) solutions sprayed at 200 psi and 20 degrees C

**Disclosure Number**

* 2344

**Patents Issued**

* [6723363](http://www.google.com/patents/US6723363)

**For Licensing Information**

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The disclosed process provides a sprayable shellac solution that reduces VOCs while improving production rates. By utilizing carbon dioxide as a viscosity reduction agent and/or a propellant, the process reduces the alcohol concentration in the shellac solution - potentially by more than 50 percent. This technique also substantially reduces processing time, since the processing time depends on the time required to evaporate the solvent.

**Background**

Pharmaceutical and food products are often coated with edible shellac, which must be of a sufficiently reduced viscosity. Current practice involves dissolving shellac in a solvent, using an alcohol. The coating process, called panning, involves tumbling the product (tablets, candies, etc.) in a revolving drum. As the product tumbles, the shellac solution is sprayed or ladled on. Drying air is introduced to the pan, evaporating all of the alcohol. Federal regulations often require capturing the evaporated alcohol before releasing it into the environment as volatile organic compounds (VOCs). Typical stack controls (such as catalytic or thermal oxidizers) do not easily reduce the VOC emissions from panning, necessitating higher-cost solutions. Because of these high costs and the lack of adequate substitute solvents in shellac coating, there is a need for a new spraying process.

**Invention Description**

The disclosed process provides a sprayable shellac solution that reduces VOCs while improving production rates. By utilizing carbon dioxide as a viscosity reduction agent and/or a propellant, the process reduces the alcohol concentration in the shellac solution - potentially by more than 50 percent. This technique also substantially reduces processing time, since the processing time depends on the time required to evaporate the solvent.

**Advantages**

* Substantially reduced processing time thanks to quickly evaporating solvent
* Reduced cost for post-process VOC removal
* Reduced environmental impact
* Easily adaptable to current processes, with no expensive retrofitting necessary