



## Inhibiting Storage Browning in Cheese

[View U.S. Patent No. 11,197,485 in PDF format.](#)

**WARF: P130152US01**

Inventors: Scott Rankin

**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing a method to control browning and associated off-flavoring in cheese, especially Parmesan.**

### Overview

For 800 years Parmesan has been one of the most sought-after cheeses and today supports a billion dollar market. Parmesan is susceptible to an unappealing browning effect that is not fully understood but involves the compound methylglyoxal, which results from microbial metabolism. It isn't prevented by refrigeration.

Appearance and proper flavor are critical to cheese marketability. Preventing browning and its impacts on taste and odor would help products retain their value.

### The Invention

A UW-Madison researcher has developed a method to inhibit methylglyoxal-mediated cheese browning using a reducing agent. The reducing agent, such as glutathione or sodium sulphite, is added in an effective amount to cheese upon shredding.

### Applications

- Inhibiting browning in Parmesan cheese

### Key Benefits

- First known means to prevent this type of browning
- Treated cheese has better color, odor and flavor.
- Products retain market value.

### Stage of Development

The development of this technology was supported by WARF Accelerator. WARF Accelerator selects WARF's most commercially promising technologies and provides expert assistance and funding to enable achievement of commercially significant milestones. WARF believes that these technologies are especially attractive opportunities for licensing.

### Additional Information

#### For More Information About the Inventors

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

• [Scott Rankin](#)

Related Technologies

OK



**WARF**  
Wisconsin Alumni Research Foundation

| [info@warf.org](mailto:info@warf.org) | 608.960.9850

- [WARF reference number P03299US describes a method using endopeptidase enzymes to reduce the bitterness and off-flavors that can develop in cheese during the aging process.](#)

#### Publications

- Divine R. D. and Rankin S.A. 2013. Reducing Agents Attenuate Methylglyoxal-Based Browning in Parmesan Cheese. J. Dairy Sci. 96, 6242-6247.
- Divine R. D., Sommer D., Lopez-Hernandez A. and Rankin S.A. 2012. Evidence for Methylglyoxal-Mediated Browning of Parmesan Cheese During Aging. J. Dairy Sci. 95, 2347-2354.

#### Tech Fields

- [Animals, Agriculture & Food : Food safety & quality](#)

For current licensing status, please contact Emily Bauer at [emily@warf.org](mailto:emily@warf.org) or 608-960-9842

We use cookies on this site to enhance your experience and improve our marketing efforts. By continuing to browse without changing your browser settings to block or delete cookies, you agree to the storing of cookies and related technologies on your device. [See our privacy policy.](#)

OK



**WARF**  
Wisconsin Alumni Research Foundation

| [info@warf.org](mailto:info@warf.org) | 608.960.9850