

## M5 Advanced Cladding

World Class Material Designed for Unmatched Corrosion Resistance and Hydrogen Uptake

### Challenge

PWR operations are increasingly demanding, requiring ever higher thermal, structural, and neutronic performance requirements to enhance safety and fuel cycle economics.

In particular, many new regulations are aimed at addressing concerns with cladding performance as this represents the first containment barrier to fission product release. Utilities are faced with meeting these new safety requirements while maintaining or improving fuel cycle economics.

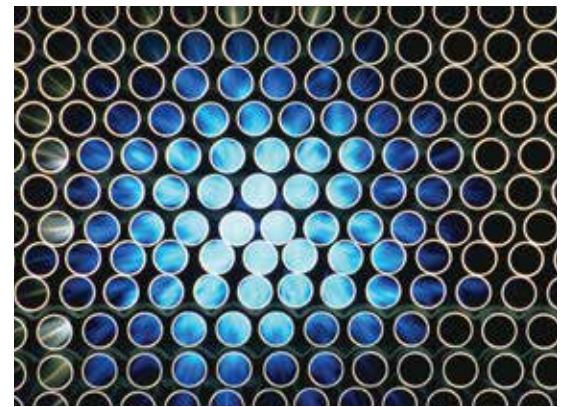
### Solution

Framatome offers an advanced zirconium alloy for PWR fuel rod cladding and fuel assembly structural components to provide our customers with increased performance in their nuclear operations.

This fully re-crystallized Zirconium-Niobium alloy produces much improved corrosion and hydrogen behavior. The stable microstructure responsible for these performance improvements is the result of the alloy's composition and innovative manufacturing parameters.

### Minimizes Licensing Costs and Risks

- New NRC regulations reflect the degradation in accident resistance due to operational hydrogen uptake
- M5 leads the industry in corrosion resistance and demonstrates the lowest end-of-life hydrogen content
- M5 provides cycle design flexibility without sacrificing margin for accidents such as LOCA and RIA



### Customer benefits

- Proven performance in a wide range of PWR operating conditions and fuel assembly designs
- Successful operational experience to burnups well beyond limits approved for US PWRs today
- Maintains significant margins to current and changing safety regulatory requirements
- Low corrosion & extremely low hydrogen pickup
- Increased performance margins at high burnup for additional operational flexibility for plants

**Your performance**  
is **our** everyday **commitment**

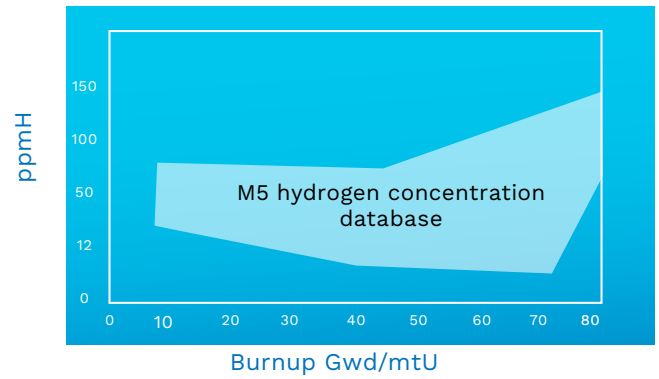
**Current Framatome fuel customers**

no changes are needed to fuel, cladding, cycle design, or analyses to retain margin in accident performance.

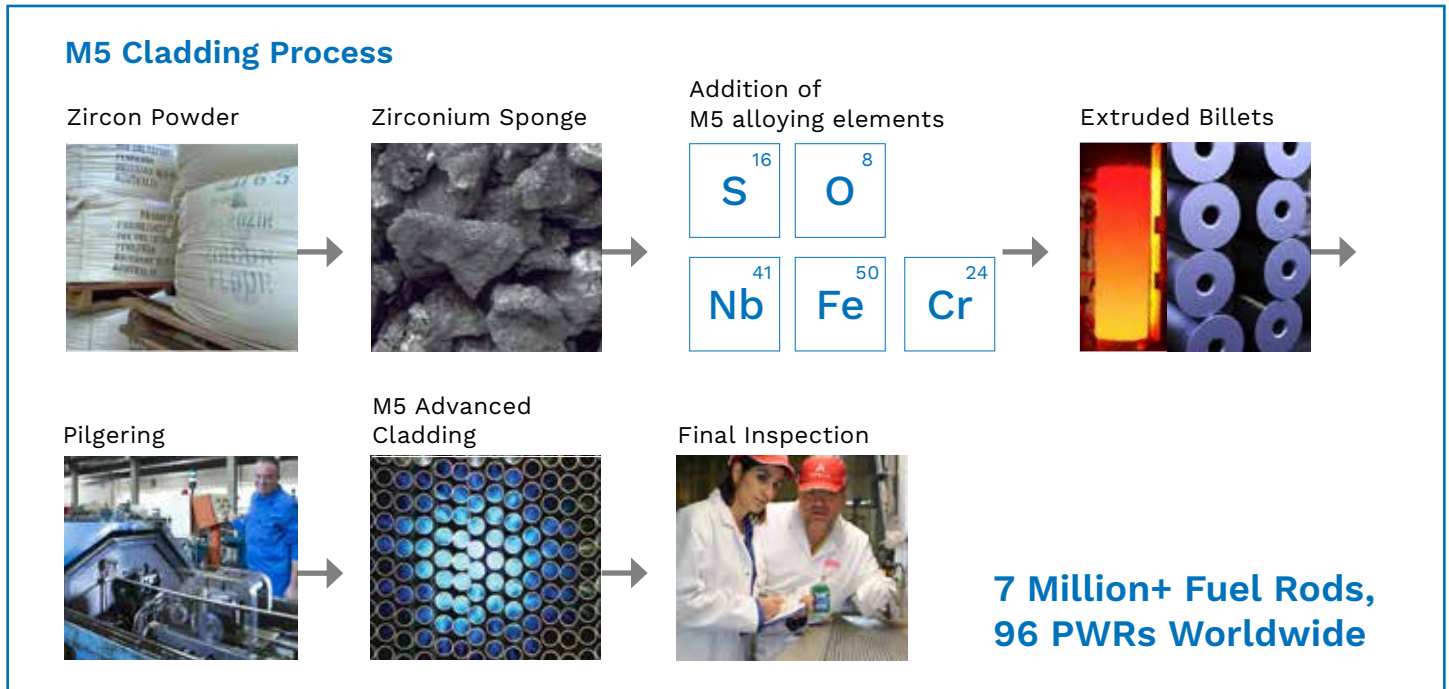
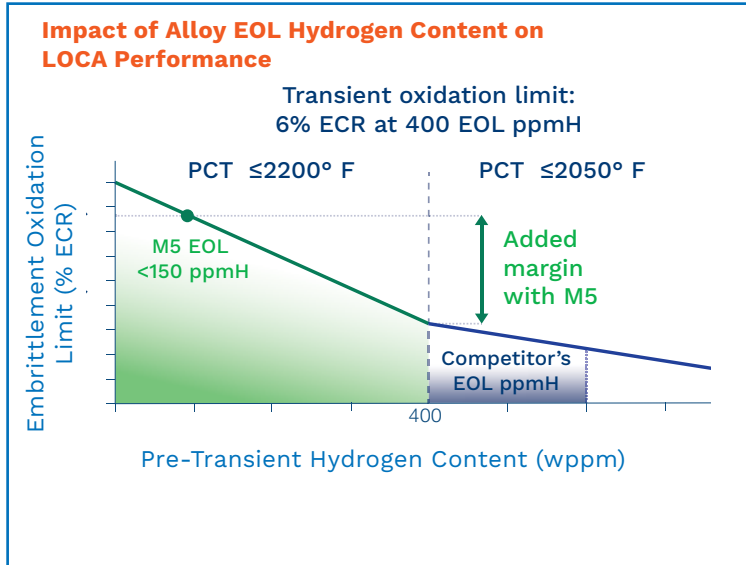
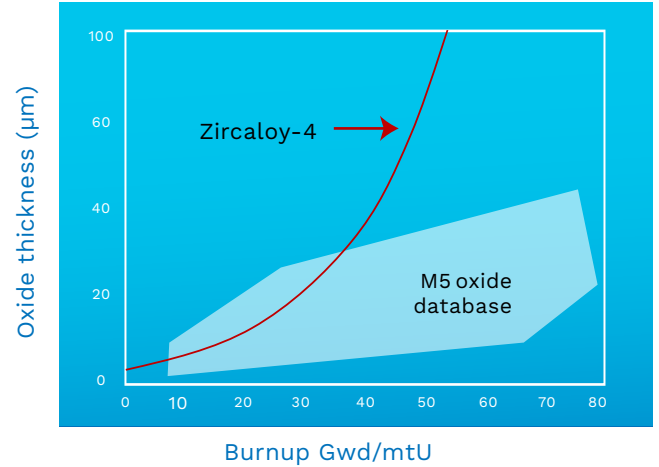
**New Framatome fuel customers**

will gain significant design and performance margin versus available alternatives.

**M5 exhibits less than 150 ppmH at EOL**



**M5 has industry leading corrosion performance**



Learn more at [http://www.framatome.com/EN/us\\_platform-812/framatome-u-s-fuel-reliability.html](http://www.framatome.com/EN/us_platform-812/framatome-u-s-fuel-reliability.html)

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