# THE DOZN™ SCALE

Based on the 12 Principles of Green Chemistry*, DOZN helps researchers, scientists, and manufacturers increase performance and efficiency while reducing human and environmental impact.

**Paul T. Anastas and John C. Warner, 1991.*

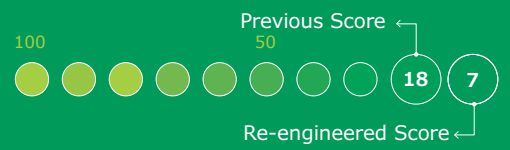
## N-Maleoyl-β-alanine (394815)

| | 12 Principles of Green Chemistry | Percentage of Improvement | Results |
|---|---|---|---|
| Resource Used | Atom Economy | 54% | Increased yield. Used less raw materials |
| | Waste Prevention | 64% | Eliminated use of organic solvents. Reduced waste |
| | Reduce Derivatives | N/A | |
| | Renewable Feedstocks Use | 60% | Decreased amount of raw materials |
| | Real-Time Pollution Prevention | N/A | |
| | Catalyst | 51% | Used catalyst and yield is improved |
| | Energy Efficiency Design | N/A | |
| Human & Environmental Hazards Reduction | Less Hazardous Chemical Synthesis | 65% | Reduced hazardous reaction conditions |
| | Safer Chemical Design | N/A | |
| | Safer Solvents and Auxiliaries | 75% | Reduced and replaced solvent usage |
| | Design for Degradation | N/A | |
| | Inherently Safer Chemical for Accident Prevention | 68% | Reduced flammability and reactivity hazard |

**TOTAL PERCENT IMPROVEMENT** 61%

**AGGREGATE SCORE**

0= Most Desirable




**The Life Science business of Merck operates as MilliporeSigma in the U.S. and Canada.**