

(54) Title of the invention : Automated Nutritional Preparation Support System for Precision Neonatal Care

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(57) Abstract :
 ABSTRACT Automated Nutritional Preparation Support System for Precision Neonatal Care The present invention discloses an automated system for preparing and dispensing customized neonatal nutritional compositions. The system comprises a four-solution syringe mechanism with independently controlled actuators, and a real-time monitoring system. A microprocessor-controlled interface enables precise nutrient profile customization and automated preparation, while maintaining sterile conditions throughout the process. The invention's modular design allows for deployment across various healthcare settings through different embodiments, including configurations for NICUs, home care, resource-limited settings, and research applications. The system addresses critical challenges in neonatal nutrition by ensuring precise dosing, maintaining sterility, enabling customization, and providing comprehensive data logging for quality control and regulatory compliance. This invention represents a significant advancement in neonatal care technology, offering improved safety, efficiency, and adaptability in preparing infant nutritional compositions. Fig. 1

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