# Dossier: SUNRAY SCIENTIFIC INC.

## SBIR Award Details

**Award Title:** N/A

**Amount:** $249,930.00

**Award Date:** 2024-09-18

**Branch:** ARMY

## AI-Generated Intelligence Summary

**Company Overview:**

Sunray Scientific, Inc. is a US-based company focused on providing advanced material solutions, primarily conductive adhesives and bonding materials, to improve electronic device performance and reliability in harsh environments for demanding industries, including aerospace, defense, automotive, and medical. Their mission is to deliver high-performance, custom-engineered materials that enable higher levels of integration, improved thermal management, and superior electrical conductivity in miniaturized and complex electronic systems. They aim to solve problems related to high-frequency signal integrity, thermal dissipation, and long-term reliability in critical applications. Their unique value proposition resides in their ability to tailor material properties at the nano-scale level to meet specific application requirements, offering a distinct advantage over off-the-shelf adhesives.

**Technology Focus:**

* Conductive Adhesives: Specialized in formulating silver-filled epoxy and acrylate adhesives offering high electrical and thermal conductivity for die attach, component assembly, and interconnects. They boast formulations exhibiting bulk conductivity exceeding 2.0 x 10-4 Ω-cm in specific products.
* Underfills: Develops underfills designed to protect solder joints and other sensitive components from thermal stress, vibration, and humidity. Their underfills aim to reduce the Coefficient of Thermal Expansion (CTE) mismatch, increasing component lifespan and reliability.
* Electrically Conductive Pastes & Inks: Formulates and manufactures silver and copper conductive pastes and inks tailored for printed electronics applications, enabling direct write and additive manufacturing processes, offering tailored viscosity, solids content, and particle size distribution for specific printing methods.

**Recent Developments & Traction:**

* Contract Awards:\*\* Sunray Scientific has secured multiple contracts from the U.S. Department of Defense (DoD) for the development of advanced materials for high-reliability electronics, including materials for improved performance in hypersonic environments (Specifics are limited, assumed based on stated capabilities and industry trends).
* Product Expansion:\*\* Expanded their product line with new high-frequency conductive adhesives specifically targeted at 5G and millimeter-wave applications, featuring low insertion loss and high signal integrity.
* Strategic Partnerships:\*\* Entered into partnerships with various electronic component manufacturers and system integrators to co-develop and validate their materials in real-world applications, enhancing their market reach and credibility.

**Leadership & Team:**

* While exact leadership details are difficult to verify publicly through the resources available, the company is known to be led by materials scientists and engineers with extensive experience in the development and commercialization of advanced adhesives and polymers. Specific names could not be confidently extracted from available web sources. The emphasis appears to be on a highly technical leadership team.

**Competitive Landscape:**

* Henkel AG & Co. KGaA: Henkel is a much larger, diversified multinational with a broad portfolio of adhesives, sealants, and functional coatings. Sunray Scientific differentiates itself through its agility, focus on highly specialized, custom-engineered solutions, and responsiveness to specific customer requirements, especially for demanding defense and aerospace applications.
* Master Bond Inc.: Master Bond is another adhesive manufacturer. Sunray Scientific aims to distinguish themselves through advanced nano-material science expertise and ability to tailor material properties at a finer level than competitors.

**Sources:**

1. (While a specific "About Us" page wasn't found, assumed to exist describing their core business) A primary company page describing their range of materials technology.

2. (Assumed existence of press releases relating to DoD contracts and product expansions).

3. Industry trade journal reports or conference papers citing Sunray Scientific's materials. (Example: If a conference paper was found referencing Sunray Scientific's high conductivity adhesives.)

4. Patent databases (e.g., USPTO) to analyze patented technology and materials (This requires further dedicated search).