R018-A: Biocomposite Development for Industrial and Consumer Products
Submitted by c2renew corporation, Earth-Kind, NDSU
Principal Investigator: Chad Ulven
Request for $150,000; Total Project Costs $300,000

Technical Advisor Comments

- One reviewer recommended fund, two recommended funding may be considered
- The 50% match comes from industry, 27% of it is cash.
- Regarding achievability, 1 reviewer questioned cost analysis, stating "…the proposal talks a lot about the market size, but without cost analysis… will it be more expensive than the petroleum analogs?" Another felt 6 months was not feasible for the rodent repellent holder.
    - The applicant has stated that "The biocomposites are formulated to be lower in price than the neat polymers currently being used, giving the OEM an advantage of using a less expensive material…"
    - Regarding the 6 month timeline, the applicant stated, "Admittedly, the rodent repellent holder timeframe is aggressive at 6 months. However, it is a relatively straightforward consumer product, and the preliminary design and material formulation have already been completed. For these reasons it is believed that the proposed timeframe is achievable…"
- All 3 reviewers felt more information was needed in the methodology and had concerns regarding process/quality control, feedstock management, and the specifications for each product.
- All 3 reviewers felt the awareness of other research was limited.
    - One reviewer cited concerns regarding IP protection.
        - The applicant has stated, "Currently, the IP strategy for the technology is that of trade secret. This technology was developed over the period of 7 years through research completed in the ME Dept. at NDSU. This technology was then licensed by NDSU to c2renew. C2renew was then able to develop a business from this technology, and with this IP strategy has attracted outside investors to fund the company.
        - The reviewer responded, "…Without IP protection and just proceed as trade secret, it will be risky. We do not know whether it violates patent protection of other companies…"
    - One reviewer stated, "There was <u>no</u> literature cited in the proposal…"
    - Another stated, "…This is a major gap in the business plan…[I] would urge that a thorough competitor and external literature search be undertaken, for the good of the project."
        - The applicant has provided a list of references in the clarification.
- All 3 reviewers felt the management plan was adequate.

Technical Advisor Recommendations

Funding may be considered. It is concerning that all 3 reviewers had questions on the methodology. Without adequate information, it is difficult for the technical experts to tell if the proposal is achievable. With that said, all 3 reviewers felt the investigators were well qualified for the endeavor.

One of the reviewers stated, "…Biomaterials are a fast-growing market opportunity…" The proposal has a clear roadmap to commercialization and is strengthened with industry match. If successful, this project would add jobs and revenue to a company located in a rural area, as well as revenue for agriculture producers.

This proposal is further strengthened by the following aspects:

- Research from a ND university will be commercialized.
- The technology is already licensed.
- There are strong industry partners.

Suggested Contingencies If Funded

- None.