

Patenting Strategies in the Biodiesel Industry

Obtaining a desirable scope of coverage, as defined by patent claims, involves a number of important considerations. Being mindful of these points can improve the chances of effectively protecting a biodiesel process or product technology.

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Accompanying the expanding number of process innovations in the biodiesel arena is a healthy growth in the intellectual property positions being carved out by participants. About 70 percent of the U.S. patents in this industry have been issued within the past four years, providing an increasingly growing landscape in which to protect new processes and equipment. Obtaining a desirable scope of coverage, as defined by patent claims, involves a number of important considerations.

Appreciating the State of the Art. A patentable invention must be deemed novel and nonobvious, relative to the current state of the art. The patent office frequently deems that this “prior art” includes not only the numerous patent and literature publications recently available in the biodiesel industry, but also the well-established technologies for processing fossil fuels. Inventors should therefore recognize key differences relative to practices in the refining and petrochemical fields. For example, the very low sulfur content of a raw bio-oil may be associated with the discovery of different catalysts and/or milder operating conditions, compared to those required for similarly upgrading a counterpart, crude oil fraction. In this case, the specific types of catalysts and operating conditions, and a description as to how they differ from the art-recognized standards, should be documented in an invention disclosure.

Claiming Advantages over Features. The mere fact that some process or product feature is unknown in the prior art typically cannot, without more, overcome the nonobviousness hurdle to a patent award. Patent examiners frequently cite legal propositions relating to “obvious design

choices” and “routine optimization” in concluding that a given modification, such as a new operating Feature X (e.g., one or a combination of process conditions such as temperature, pressure, reactor residence time, etc.), cannot be patented.

But suppose it is newly discovered that Feature X leads to reduced byproduct yields. If Feature X alone is incorporated into a patent claim to a process, it could be dismissed as an obvious modification, based on any suggestion in the prior art leading to operating Feature X, for example, the need to compensate for a different feedstock composition. However, claiming Feature X together with its associated process advantage, namely a decreased percentage of byproduct yield, presents a much stronger case for patentability. Similarly, claiming Feature X together with some related advantage, such as a defined reduction in posttreatment operating severity or energy input (due to the reduced byproducts), provides a separate way to potentially patent the invention. On this point, it is always beneficial to present alternate claim formats, as some claim limitations may be harder to prove were known in the prior art (rendering the claim more difficult to invalidate), whereas other claim limitations may be easier to demonstrate are infringed by a competitor’s practices.

Numerical ranges that quantify any and all advantages are valuable, because qualitative statements alone (e.g., improved throughput) may not be deemed to describe the invention with sufficient definiteness. Where possible, examples should be added that experimentally confirm the defined values.

Explaining the Invention in the Patent Specification. A well-drafted patent application does more than simply describe a process or product and list a large number of associated embodiments or aspects. It conveys the importance of the invention in terms of addressing known problems and conferring benefits that could not have been appreciated from knowledge of the prior art. This leaves the practitioner prosecuting the application before the patent office (who may not have drafted the application) with arguments and evidence supporting the patentability of the invention, and with little doubt as to inventor’s overall motivation for seeking patent protection.

Being mindful of these points can improve the chances of effectively protecting a biodiesel process or product technology, with a claim scope encompassing foreseeable activities of competitors attempting to design around the patent. Value derived from strong patents will benefit the technology developer as well as other stakeholders in a venture, including investors, licensees and end users.

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