

COMMISSIONER'S DECISION

Anticipation; Claiming - Encapsulating Insecticidal Products

Fungicides, pharmaceuticals and other chemical products are encapsulated with polyurea to provide ease of handling, slow release, delayed action and other advantages. The process claims had been considered allowable, but the product claims were refused for anticipation, and for being improperly dependent upon the process claims. It was concluded the products were physically different from the prior art, and that this was a proper case for making the product claims dependent upon the process claims.

Rejection: Reversed

Patent application 164,086 (Class 117-47) was filed on February 20, 1973, for an invention entitled "Encapsulation Process." The inventor is Herbert B. Scher, assignor to Stauffer Chemical Company. The Examiner in charge of the application took a Final Action on March 9, 1978, refusing to allow it to proceed to patent. In reviewing the rejection, the Patent Appeal Board held a Hearing on October 24, 1979, at which the Applicant was represented by Mr. W. Mace.

The invention claimed is one of encapsulating fungicides, pharmaceuticals, and other chemical products within a shell of polyurea. Among other advantages, the capsules permit slow release and delayed action of the material within the capsules. It permits easier handling of volatile insecticides.

Of the 88 claims, sixty-four are directed to the process of encapsulation. No objections are now being made against the process claims, though we question the need of such a large number to protect what is a relatively straight-forward method. Conceivably Rule 44 might have been applied against some of them, and the Applicant might still wish to consider reducing their number.

What has been rejected are the claims to the product, 47-71, and we limit our attention to them. They were refused on two grounds, firstly that they are claimed by the process to make them, rather than by structure and properties; and secondly on the ground that they are old, having been disclosed in U.K. patent 1091141, Nov. 15, 1967, to Vandegaer, May 4, 1971, mentioned on page 4 of the disclosure.

Typical claims in the application are 1, 5, 47 and 48, which are reproduced below:

1. A process of encapsulating water-immiscible material within a shell of polyurea which comprises the steps:
 - (a) providing in an aqueous phase a solution comprising water, a surfactant and a protective colloid;
 - (b) adding to said aqueous phase a water-immiscible phase comprising the water-immiscible material to be encapsulated and an organic polyisocyanate;
 - (c) dispersing said water-immiscible phase in said aqueous phase to establish droplets of the water-immiscible phase in said aqueous phase;
 - (d) adjusting the pH of said aqueous phase to a value between 0 and 14;
 - (e) heating and maintaining the dispersed water-immiscible phase and aqueous phase in a temperature range of about 20°C. to about 90°C.; whereupon said water-immiscible material is encapsulated within a polyurea capsular enclosure.
5. The process of Claim 1 in which said water-immiscible material is water-immiscible organic material.
47. Capsules capable of controlled release of encapsulated organic material comprising a thiocarbamate herbicide enclosed in a skin of a polyurea in the form of a microcapsule produced by the process of Claim 5.
48. Capsules of Claim 47 in which said thiocarbamate herbicide is S-ethyl diisobutylthiocarbamate.

From what was said at the Hearing it is clear that the products claims are chemically the same as those disclosed in Vandegaer. Example 6 of Vandegaer, in particular, shows the production of organic material encapsulated within a polyurea skin. At one stage Applicant contended the two products were

chemically distinguishable from each other (letter of July 19, 1977, p.1), but has now retreated from that position. It is Applicant's present contention, however, that despite their chemical similarity, there are physical differences between the two, sufficient to patentably distinguish one from the other. These physical differences are the result of Applicant's new method of encapsulation. These physical differences were not fully explained in the original disclosure when it was filed. They were first developed in some detail in the response of July 19, 1977, at page 2, where it was said Applicant's capsules have smooth walls rather than the sponge-like form in Vandegaer, and that the smooth wall "provides certain advantageous control release properties." It was also stated there were chemical differences from the prior art capsules.

In a still later letter, that of June 7, 1978, Applicant has pointed out some other physical differences. He mentions that his particles do not agglomerate together but remain discrete; that the capsules dry to a powdery solid rather than a rubbery clump; and that these properties provide advantageous control release properties not inherent in the prior art capsules.

From those submissions we are satisfied that Applicant's products do differ from those in the prior art, and that such differences are patentably significant.

There is still a question whether Applicant disclosed that his products were in any way different from that in the prior art when he filed his application, so that it can be said he fully described the invention within the meaning of Section 36(1) of the Patent Act. At the top of page 4 of the disclosure he indicated that they had an "extremely thin skin." At the bottom of the same page he referred to the provided "special advantages." On page 6 it is said the product of the new process "is particularly suitable for direct agricultural pesticidal applications." On page 16 it is said that

capsules made by Applicant's process have "special utility" for encapsulation by various volatile or unstable insecticides and herbicides. In example 5 it is shown that the product can be dried to produce "discrete spheroid particles," one of the advantages stressed in Applicant's letter of June 7, 1978 (supra). In example 1 he has shown they are "discrete capsules" which "disperse well."

That such differences do in fact exist was confirmed, and elaborated upon in an affidavit of Herbert Benson Scher submitted after the final rejection on Sept. 21, 1979. The photomicrographs attached to the affidavit clearly show the physical differences.

The disclosure of the application is not nearly so complete, but we are of the view that the portions referred to above are such that we cannot clearly say the Applicant did not point to his particles being different from Vandegaer's. Consequently we believe the objection based upon that citation and upon inadequate disclosure should be withdrawn. It is unfortunate that the material referred to in the preceding paragraph had not been included in the original disclosure. In that event there would have been no need for this review.

We turn now to the second main branch of the Examiner's rejection. Has the Applicant properly claimed the products when he defines them by the process by which they were manufactured? The Examiner has said that they should be defined by their properties and structure. In his argument Applicant has replied:

...

...Applicant respectfully submits that the specific structure of the polyurea microcapsule of claims 47 to 71 is most difficult to physically define other than to state that the polyurea forms a skin for the encapsulated organic material. Applicant in his response of July 19, 1977, suggested that the capsule wall is a smooth membrane-like structure; however as further indicated in the response submitted December 5, 1977, applicant deemed it advisable to define the walls as a skin in view that there was no support for the term "membrane-like" in the present specification. Applicant was thus able to define the structure of the wall as being a "skin". It is thus readily seen that the product is not susceptible to structural definition.

...

He has also made extensive arguments based upon Section 8.04 of the Manual of Patent Office Practice. However, since the Manual is only a guide to practice, and not an authority to be used as justification for refusing or allowing applications, we do not believe we should entertain arguments as to whether the Manual has been complied with or what the Manual means. Instead we should direct our consideration to whether or not the claims satisfy the strict requirement of Section 36 of the Patent Act that the claims must be distinct and explicit.

Clearly the most explicit form of claim for claimed products is one which defines the chemical structure or composition of that product. It is, however, well recognized in patent law (one might refer to numerous patents both in Canada and elsewhere) that when it is impossible to define a new product by structure because that structure is not known and cannot be readily ascertained, that the product may be defined by other means such as properties or method of manufacture. This is permitted when it will serve to distinguish an inventor's product from other products, whether those other products already exist or not.

In the present use Applicant says the structure and composition are most difficult to define other than by the manner of producing the product. He has said that the chemical and physical properties vary depending upon the reactants employed, and the physical properties would be most difficult to define. We note, too, that in some ways it is similar to the products made by Vandegaer, so that there are added difficulties in distinguishing Applicant's products from Vandegaer's. This is, in our view, consequently a case where the only way to define the product is by the way of manufacturing it, and we recommend that that style of claim be accepted in this case.



G.A. Asher
Chairman
Patent Appeal Board, Canada

I have considered the prosecution of this application and the recommendation of the Patent Appeal Board. I have decided that the objections made should be withdrawn, and remand the application to the Examiner for action consistent with my decision.



J.H.A. Gariepy
Commissioner of Patents

Dated at Hull, Quebec

this 9th. day of June, 1980

Agent for Applicant

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