COMMISSIONER'S DECISION

Reissue: Polyolefin Rubbers

In the original patent the claims were directed to a polybutadiene resin mixed with 2-35% filler. In the reissue application the film was extended to 2-58% filler. However there was never any disclosure of such a broad range, and the Applicant made a scientifically unsound extrapolation to justify his new claims. The claims are not adequately supported.

Rejection: Affirmed

****

Patent application 271054 (Class 400-78), was filed on February 4, 1977, for an invention entitled "Polyolefin Rubbers Reacted With Butadiene Resins." The inventors are Jon W. Martin et al, assignors to TRW Inc. The Examiner in charge of the application took a Final Action on Feb. 16, 1978, refusing to allow it to proceed to patent. Applicant has requested a review, but has not asked for a Hearing.

The Applicant wishes to reissue his earlier patent 920733, granted February 6, 1973, for a peroxide cured elastomeric composition useful in corrosive environments. The composition comprises a polyolefin rubber matrix, a liquid derived 1,2-polybutadiene resin with a minimum of 84% butadiene in the vinyl configuration and a filler. In patent 920733 the claims are restricted to a composition containing 2-35% by weight of filler. Claim 1 recited below is the broadest claim of patent 920733.

> A peroxide-cured elastomeric composition comprising: a polyolefin rubber matrix: 40%-94%; a liquid derived 1,2-polybutadiene resin: 2%-40%; containing a minimum of 84% butadiene units in the vinyl configuration; and filler: 2%-35%, all percentage parts by weight.

In the reissue application, Applicant wishes to broaden the scope of claim 1 by altering the amount offiller to "at least 2% ... by weight," i.e. up to a maximum of 58% by weight.

The Examiner refused claims 1 to 3, and with them dependent claims 7 to 9 of the reissue application, for being too broad. Firstly, these claims were held to be broader than the original invention disclosed, which, the Examiner contended, supports only the range of 2 to 40.48% of filler by weight. The Examiner conceded that there were grounds for reissuing to cover the range of 2 to 40.48% by weight of filler. Additionally, the Examiner maintained that the claims in the reissue application were too broad "in view of the reissue petition paragraph 3". The relevant parts of said paragraph 3 of the petition read as follows:

> (a) The claims are too limited in that they require the presence of 2 to 35% filler. This is clearly unrealistic, having regard to the nature of the invention made by the inventors, and disclosed in the specification. For example, compound 11 on Page 10 of the patent contains about 40% alumina filler, in addition to about 3% dicumyl peroxide.
>
> (b) There is no claim which covers a filler content of 2 to 58%. If one uses the minimum amounts of the two polymers disclosed in the specification and claimed in Claim 1 or 3, totalling 42%, there remains 58% of materials which can be accounted for as filler.

The Examiner maintained that "in a three component system it does not necessarily follow that the maximum of a given component is calculable by subtracting the sum of the minima of the other two components from 100%" but, that the operable "maximum" amount of the third component can be determined only by experiment. Further, the Examiner contended that the "calculable" maximum asserted by Applicant in the disclosure and the claims of the reissue application is not supported by the specification of patent 920,733. The Examiner's rejection is based on the requirements of Section 50(1) of the Patent Act that the "new patent...be issued to him for the same invention..."

In his response to the Final Action, Applicant argues (relying upon the decision in Curl Master v Atlas Brush S.C.C. 52 CPR 51) that an "... imperfect description is sufficient;" and further that the description "...can fall short..." of that required to support the claims. It should be noted that in the Curl Master case the patent included a drawing which formed part of the original specification or description, and that that drawing provided support for the claims of the reissue application. By contrast, the figures in patent 920,733 are merely photographs of valve seats made from the composition claimed, and electron micrographs of the elastomer made from that composition. These figures do not provide any support for the breadth of claims in the reissue application, nor does the remainder of the specification of patent 920733. Thus, Applicant's argument that refusal of the reissue claims is "contrary to the principles followed in the Curlmaster decision" is not justified.

Furthermore, it is clear from Section 36(1) of the Patent Act that a "high standard of disclosure" is indeed required, and that such a disclosure in the specification of the original patent can provide the only basis for the acceptance of broad claims in a reissue application under Section 50(1) of the Patent Act. The description in the disclosure of the original patent may be insufficient but, nevertheless there must be some support in the specification, albeit in imperfect form.

Finally, Applicant argues that the extended range of the filler composition sought in the reissue application is inferable from the examples provided in patent 920,733. On the basis of these examples, he states "There is no logical reason to have taken 35% or even 40.5% as being the maximum amount of filler." However, this argument is not accepted nor are the reasons for arriving at such a conclusion.

On a careful reading of the entire specification of patent 920,733 it is clear that there is no support for a composition with a filler concentration above 40.48% by weight. Applicant has presented with his arguments a graph, labelled Fig. I, in support of his contention that the breadth of the filler concentration is inferable. We believe, however, that Applicant's arguments using this graph are scientifically and technically unsound(cf Philip R. Bevington Data Reduction and Error Analysis for the Physical Sciences, McGraw-Hill, 1969). Applicant has plotted tensile strength v. "% replacement of polybutadiene with filler." However, such a two-dimensional graph has no meaning technically in a 3 component system, since it is clear that as the filler concentration increases both the concentration of the polyolefin and that of the polybutadiene decreases.

Further, it is noted that Applicant has plotted the point, tensile strength = 1900, filler = 40.5%, incorrectly.

Applicant has then used the results of 3 plotted points to draw a "smooth curve" without any scientific justification for such a curve. Indeed, if one also plots the point, tensile strength = 1800, filler = 17% as provided in Applicant's response (Experiment 3 on page 8 of patent 920,733) it is clear that there is no justification for the "smooth curve" drawn by Applicant.

Nevertheless, Applicant uses his "smooth curve" to extrapolate the expected operability of concentrations of filler above 40.5% by weight. It is well known that it is scientifically unsound to extrapolate information based on a "smooth curve" drawn with such a paucity of experimental information, especially when the "smooth curve" is derived using the kind of reasoning

advanced by Applicant and also in the absence of experimental information between 40.5 and 100% filler. Such a "smooth curve" can only be inferred when there is sufficient experimental information to interpolate between points, i.e. it is statistically sound. Applicant argues for a hypothetical result based on the expected operability of a composition with a concentration of filler greater than 40.48% and up to 58% by weight. As such, these arguments are not convincing in the absence of clear support for these filler concentrations in the specification of patent 920,733 or, alternatively, more experimental information in patent 920733 supporting the hypothesis advanced in Applicant's response to the Final Action.

We believe the Examiner was justified in refusing the broad claims submitted in reissue application 271054 as contrary to Section 50(1) of the Patent Act. The disclosure and claims must be restricted to a filler concentration of "2 to 40.5% by weight" and application 271054 will be allowable when amended in this manner.

G.A. Asher
Chairman
Patent Appeal Board, Canada

I have reviewed the prosecution of this application, and the recommendations of the Patent Appeal Board, which I now adopt. The application to reissue is refused, but may be amended as proposed by the Board. The Applicant has six months in which to make such an amendment, or to take the rejection to appeal.

J.H.A. Gariepy
Commissioner of Patents

Agent for Applicant

Gowling & Henderson
Box 466, Terminal A
Ottawa, Ont.

Dated at Hull, Quebec
this 2nd. day of January, 1980