

IN THE SUPREME COURT OF THE STATE OF DELAWARE

GENERAL MOTORS CORPORATION )  
and FORD MOTOR COMPANY, ) No. 453, 2007 & 578, 2007  
)  
Defendants Below, ) Court Below: Superior Court  
Appellants, ) of the State of Delaware in  
) and for New Castle County  
v. )  
) C.A. No. 05C-11-257  
ROLAND LEO GRENIER, SR., )  
)  
Plaintiff Below, )  
Appellee. )

Submitted: October 29, 2008

Decided: February 4, 2009

Before **STEELE**, Chief Justice, **HOLLAND, BERGER, JACOBS**, Justices,  
**NOBLE**, Vice Chancellor\* constituting the court *en banc*.

Upon appeal from the Superior Court. **REMANDED**.

Christian J. Singewald, White & Williams LLP, Wilmington, Delaware;  
Eileen Penner, *pro hac vice* (argued) for appellants.

Yvonne Takvorian Saville, Weiss & Saville, P.A., Wilmington, Delaware;  
Kevin D. McHargue, *pro hac vice* (argued) for appellee.

Joseph J. Rhoades and A. Dale Bowers, Wilmington, Delaware for the  
Concerned Scientists as *amici curiae*.

Somers S. Price, Jr., Potter Anderson & Corroon LLP; Matthew P.  
Donelson, Elzufon, Austin, Reardon, Tarlov & Mondell, P.A.; and, J. Michael  
Johnson, Rawle & Henderson LLP, Wilmington, Delaware for Chrysler LLC,  
Borg-Warner Corporation and Honeywell International, Inc., as *amici curiae*.

**STEELE**, Chief Justice:

\*Sitting by designation pursuant to Del. Const. Art. IV § 12.

Roland Grenier, Sr., plaintiff below, worked as an auto mechanic for thirty-eight years. During that time, he developed mesothelioma, a fatal form of lung cancer. As an auto mechanic, Grenier worked with products manufactured and supplied by General Motors Corporation and Ford Motor Company, defendants below. Grenier is one of several plaintiffs who brought an action in the Superior Court, alleging that dust from brake shoes and other friction products manufactured by GM, Ford, and numerous other defendants, caused either asbestosis, mesothelioma, or lung cancer. GM and Ford joined Chrysler's pretrial motion in limine to exclude the plaintiffs' general causation experts. One Superior Court judge decided all of the pretrial motions ("motion judge"), and another oversaw Grenier's trial ("trial judge"). The jury found GM and Ford strictly liable and found GM acted negligently, allotting seventy percent responsibility to GM, sixteen percent to Ford, and two percent each to seven other friction product manufacturers (Abex, Bendix, Borg Warner, Daimler Chrysler, Hk. Porter, Johns-Manville, and Maremont).

In this appeal, GM and Ford allege that the motion judge abused his discretion by denying their motions to exclude Grenier's and the other plaintiffs' unreliable and, therefore, irrelevant expert testimony. GM and Ford also contend that the trial judge erred or abused her discretion by: (1) denying their motion for judgment as a matter of law because Grenier failed to present sufficient evidence to

prove causation; (2) denying their motion for a new trial because Grenier concealed evidence, until after trial, that directly supported GM and Ford's alternative causation defense; (3) excluding relevant evidence and admitting irrelevant and speculative evidence; (4) improperly instructing the jury; and (5) denying their motion for a new trial because Grenier's counsel gave an unduly prejudicial and inflammatory closing argument. GM and Ford further allege that the cumulative effect of these various errors entitles them to a new trial.

We conclude that the motion judge erroneously characterized the record evidence underlying his decision to deny GM and others' motion to exclude the plaintiffs' experts' opinions. Because the motion judge erred in his findings of fact supporting his legal conclusions, at this point we need not address GM's and Ford's claims that the trial judge committed legal error. We remand for the motion judge to reconsider the admissibility of the plaintiffs' experts' opinions.

### ***FACT AND PROCEDURAL BACKGROUND***

Throughout Grenier's career as an auto mechanic,<sup>1</sup> he installed and repaired friction products, including brake shoes and clutch pads, manufactured by GM and Ford. Those friction products contained chrysotile, one of three forms of

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<sup>1</sup> Before becoming an auto mechanic, Grenier worked: on a farm; at a clothing factory (loading and unloading washing machines); painting houses; and also visited his father, who worked as a residential contractor, at various job sites.

commercially used asbestos. GM and Ford do not dispute the ample and well established evidence that exposure to some products containing chrysotile, under certain conditions, causes mesothelioma. They insist, however, that the chrysotile fibers in friction products are significantly different and that there is insufficient reliable evidence linking exposure to friction products and lung disease.

GM and Ford offer several reasons why auto mechanics are not at increased risk of developing mesothelioma. First, they claim that chrysotile asbestos, generally, is far less toxic than other forms of asbestos. Second, in manufacturing friction products, the chrysotile fibers are heated and milled. This process, GM and Ford argue, alters the chrysotile fibers' surface characteristics, which affects the fibers' interaction with human lung tissue. Third, the chrysotile used in friction products is embedded in a resin matrix, which makes the fibers less prone to release and respiration. Fourth, friction products create and are subjected to high temperatures that convert chrysotile into forsterite, a non-toxic substance. Fifth, those high temperatures also alter the surface characteristics of any chrysotile not converted into forsterite. Sixth, those remaining chrysotile fibers tend to be small enough to be readily expunged from the lungs. Finally, GM and Ford claim that auto mechanics' time-weighted average exposure to asbestos is within contemporary regulatory limits.

Before trial, GM and Ford joined in Chrysler's *Daubert*<sup>2</sup> motion to exclude Grenier's and the other plaintiffs' experts' testimony opining that exposure to friction products causes lung disease. GM and Ford challenged those experts' methodologies and analyses, particularly their failure to give adequate weight to several epidemiological studies that demonstrated no increased risk of lung disease for people routinely exposed to friction products. GM and Ford argued that these epidemiological studies trumped the evidence relied upon by the plaintiffs' experts. In response, Grenier and the other plaintiffs asserted that those epidemiological studies are flawed and the epidemiological evidence concerning exposure to friction products and lung disease is "equivocal." The plaintiffs argued that the chrysotile fibers in friction products are indistinguishable from the chrysotile fibers used in other asbestos products, which allows them to rely on the well established evidence that chrysotile, generally, causes lung disease. The plaintiffs also asserted that, in any event, their experts validly relied on case reports, animal studies, and pathological studies to conclude that exposure to friction products can cause lung disease.

In 2005, the motion judge conducted a four day *Daubert* hearing to consider the reliability of the plaintiffs' evidence concerning "whether automotive friction

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<sup>2</sup> See generally *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993); see also, e.g., *Weisgram v. Marley Co.*, 528 U.S. 440 (2000); *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999); *General Elec. Co. v. Joiner*, 522 U.S. 136 (1997).

products, which contain chrysotile asbestos, can cause Mesothelioma, Lung Cancer or Asbestosis.”<sup>3</sup> The motion judge analyzed the qualifications and methodologies of the plaintiffs’ four experts (Ronald F. Dodson, Ph.D., Samuel Hammar, M.D., Richard A. Lemen, Ph.D., and Arthur L. Frank, M.D., Ph.D.) and the defendants’ lone expert (Michael Goodman, M.D.). The motion judge ultimately concluded that the “plaintiffs’ medical and scientific evidence ... is sufficiently reliable to pass through the *Daubert* filter, and that the proper manner by which to challenge the plaintiffs’ theories, and to expose their weaknesses, is through vigorous cross examination of the plaintiffs’ expert witnesses.”<sup>4</sup>

At trial, Grenier exclusively relied on Dr. Lemen’s testimony to establish that friction products generally cause mesothelioma. In defense, GM and Ford presented a number of epidemiological studies demonstrating no increased risk of lung disease associated with exposure to friction products. GM and Ford insisted that Grenier’s disease resulted from his exposure to other forms of asbestos products, *i.e.*, not from his exposure to friction products. After several weeks of testimony, the jury returned a verdict in favor of Grenier for \$2 million. This appeal followed.

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<sup>3</sup> *In re Asbestos Litigation*, 911 A.2d 1176, 1182 (Del. Super. 2006).

<sup>4</sup> *Id.* at 1180.

## ***DISCUSSION***

### **The Admissibility of Plaintiffs' Expert Opinions.**

We review a motion judge's decision to deny exclusion of expert testimony for abuse of discretion.<sup>5</sup> In reviewing the motion judge's decision, we review the motion judge's findings of fact "to determine if they are supported by the record and are the product of a logical and orderly reasoning process."<sup>6</sup> Although we conclude that the motion judge erred in his factual findings concerning two of the plaintiffs' expert opinions, we have not concluded that he necessarily abused his discretion. Therefore, we remand with instructions for the motion judge to reconsider and clarify his evidentiary determinations underlying his decision to admit those experts' opinions.<sup>7</sup>

### **Dr. Dodson's Opinion**

The motion judge determined that Ronald F. Dodson, Ph.D. possessed sufficient qualifications and that his methodology and analysis were adequately

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<sup>5</sup> *M.G. Bancorporation v. Le Beau*, 737 A.2d 513, 522 (Del. 1999) (citing *Joiner*, 522 U.S. at 141-42).

<sup>6</sup> *DCV Holdings, Inc. v. ConAgra, Inc.*, 889 A.2d 954, 957-58 (Del. 2005).

<sup>7</sup> Given the complexity and sheer volume of the testimony at issue, we sympathize with the motion judge's concerns regarding his ability to act as arbiter. In the interest of justice, we write not to criticize the motion judge's thoughtful opinion but to seek a clear guarantee that he adequately fulfilled the gatekeeping duties *Daubert* and D.R.E. 702 mandate.

reliable to opine that the “chrysotile contained in brake linings and clutches is no different than the chrysotile he has studied in other types of products.”<sup>8</sup>

Dr. Dodson is “a researcher with an advanced degree in life sciences and a specialty in biological electron microscopy[,]” whose work “involves the study of human tissue and cell structure and the analysis of asbestos fibers under sensitive and powerful microscopes.”<sup>9</sup> The motion judge described the basis for Dr. Dodson’s opinion as follows:

Dr. Dodson wrote a peer-reviewed paper in which he explained how he “washed” worn automotive clutches and looked at the surface debris under an electron microscope. He found some short chrysotile fibers and “a considerable number” of long chrysotile fibers. He then studied lung tissue of an individual “whose primary work activity had centered on clutch refabrication” and found asbestos fibers comparable to those he observed from the worn clutches. He performed a similar experiment with new friction brakes and, again, reduced his findings to writing in a peer-reviewed paper. In this instance, he was testing a hypothesis that friction products that have been bound in a matrix do not release respirable asbestos fibers. After washing the brakes, among other materials (including the resin binding), he found respirable chrysotile asbestos fibers.<sup>10</sup>

The motion judge continued: “In addition to looking at the size and amount of chrysotile fibers released from friction products, *Dr. Dodson also considered the surface characteristics of the fibers and concluded that there is no basis to*

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<sup>8</sup> *In re Asbestos Litigation*, 911 A.2d at 1184.

<sup>9</sup> *Id.* at 1183.

<sup>10</sup> *Id.* at 1184.

*distinguish the surface characteristics of friction fibers from those of other chrysotile fibers.*”<sup>11</sup>

That characterization of Dr. Dodson’s analysis is not supported by the record. From Dr. Dodson’s testimony at the *Daubert* hearing:

Q: And in the fibers that you analyzed, again, you weren’t able to, or you didn’t undertake to try to analyze the surface charge or the surface chemistry? [...]

A: No, sir.

Dr. Dodson’s testimony contradicts the motion judge’s characterization of his expert opinion. The motion judge also found that Dr. Dodson testified that he would have detected changes in surface characteristics under transmission electron microscopy (TEM).<sup>12</sup> In that respect, the motion judge also erred. First, because Dr. Dodson admitted that he did not attempt to analyze the surface characteristics of the fibers that he studied, it is irrelevant whether Dr. Dodson “would have detected changes in surface characteristics under TEM microscopy.” Second, even if he had analyzed the surface characteristics of the fibers, Dr. Dodson acknowledged that “TEM microscopy allows only for the detection of *some* alterations in *some* surface characteristics.”

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<sup>11</sup> *Id.* at 1203 (emphasis supplied).

<sup>12</sup> *Id.* at 1203 n.167.

Whether Dr. Dodson adequately considered the potential differences in the surface characteristics of friction products is relevant because he and Dr. Lemen both acknowledged that surface characteristics affect the carcinogenicity of the fibers. From Dr. Dodson's testimony at the *Daubert* hearing:

Q: And surface charge has also been brought up as potentially affecting carcinogenicity?

A: It affects some of the reactivity, yes.

Q: And surface chemistry?

A: Yes. I outlined all of those in a couple of my papers.

Dr. Lemen acknowledged the same:

Q: And at the bottom, they say, "These observations strongly suggest that the surface charge characteristics in the electronic state of asbestos fibers may be responsible for its biologic activity."

Is that what they concluded?

A: Yes.

Q: And in fact, that's not inconsistent at all with what Dr. Dodson and I discussed about the competing theories of cytotoxicity and carcinogenicity among these fibers, is it?

A: No, not all.

It is apparent that the motion judge misconstrued Dr. Dodson's testimony from his finding that: "And, although Dr. Dodson acknowledged that he could not confirm what occurs biologically or chemically (*i.e.* surface charge or surface

chemistry) when lung or pleura tissue comes into contact with a friction fiber, even Chrysler concedes that ‘no one can describe the factors that make any fiber carcinogenic.’”<sup>13</sup> The motion judge’s citation to Dr. Dodson’s testimony does not support this finding.

Because an expert’s methodology must be not only reliable intrinsically but also be reliably applied to the facts of the specific case,<sup>14</sup> we remand for the motion judge to determine whether, notwithstanding those mischaracterizations of the record, Dr. Dodson’s opinion is sufficiently reliable.

### **Dr. Lemen’s Opinion**

Dr. Lemen is “an epidemiologist and industrial hygienist who has studied asbestos for more than thirty years.”<sup>15</sup> We find that the motion judge similarly mischaracterized the record in relation to two aspects of Dr. Lemen’s opinion, and we remand for the motion judge to reconsider that opinion’s admissibility. Given our above discussion concerning Dr. Dodson’s opinion, the motion judge may need to reassess his conclusion that Dr. Lemen could rely on Dr. Dodson’s “bridge,

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<sup>13</sup> *Id.* at 1203 (citing Dr. Dodson’s testimony that he was not able to or did not try to analyze the surface charge or the surface chemistry of the friction fibers that he analyzed).

<sup>14</sup> *See* D.R.E. 702; *see also, e.g., McClain v. Metabolife International*, 401 F.3d 1233, 1245 (11th Cir. 2005) (“[an expert’s] conclusions [must be] supported by good grounds for each step in the [scientific] analysis.... [A]ny step that renders the ... analysis unreliable under the *Daubert* factors renders the expert’s testimony inadmissible.”); *Hudgens v. Bell Helicopters*, 328 F.3d 1329, 1344 (11th Cir. 2003) (“an expert’s failure to explain the basis for an important inference mandates an exclusion of his or her opinion.”).

<sup>15</sup> *In re Asbestos Litigation*, 911 A.2d at 1188.

grounded in reliable science, between the scientific data regarding the association between unrefined chrysotile and asbestos-related diseases and the association between friction products and asbestos-related diseases.”<sup>16</sup>

The motion judge misstated the evidence when he concluded that Dr. Lemen’s “use of the Bradford Hill criteria to reach his conclusion that exposure to friction products increases the risk of asbestos disease reflects an appreciation for and adherence to a sound scientific methodology.”<sup>17</sup> The motion judge, apparently, misconstrued Dr. Lemen’s testimony. Based on the record, Dr. Lemen did not *directly* apply the Bradford Hill considerations to the question of whether exposure to chrysotile fibers *from friction products* causes mesothelioma and the other asbestos related diseases; rather, Dr. Lemen only applied the criteria with respect to general chrysotile. Dr. Lemen did so because “[h]e is also of the opinion, *based on Dr. Dodson’s research* and other peer-reviewed research, that there is no scientifically justifiable reason to exclude exposure to friction products from this comprehensive body of scientific evidence.”<sup>18</sup>

Dr. Lemen acknowledged the assumptions underlying his opinion:

Q: Is it your opinion that working on cars, being exposed to friction products, increases the risk of mesothelioma?

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<sup>16</sup> *Id.* at 1204.

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 1205 (emphasis added).

A: It is my opinion that working on cars in situations where fibers are given off and they are asbestos fibers, that those fibers will increase the risk of that individual for developing an asbestos-related disease.

Q: Now you assume, don't you, in reaching that conclusion that the fibers that are released have the same biological ability or biological propensities as chrysotile fibers that were studied in other areas, right?

A: That is true.

Despite Dr. Lemen's admitted assumption, the motion judge concluded that even if the plaintiffs did not reliably establish that the chrysotile fibers from friction products are physically and chemically indistinguishable, the plaintiffs offered sufficient evidence to establish that exposure to friction products can cause lung disease.

In holding that the defendants' occupation specific epidemiological evidence did not "trump" the plaintiffs' evidence, the motion judge relied on a proposition unsupported by the record. The motion judge stated: "Finally, both Dr. Lemen and Dr. Hammar rely upon the epidemiological data out of Australia that, in their view, notwithstanding admitted shortcomings, supports an association between exposure to friction products and asbestos diseases."<sup>19</sup> Dr. Lemen's testimony at the *Daubert* hearing contradicts this finding:

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<sup>19</sup> *Id.* at 1210.

Q: And although your word is “equivocal,” I think you’ll agree that none of [the epidemiological studies] have demonstrated a positive association between friction product exposures and mesothelioma?

A: I think we can agree on that.

It is unclear whether the motion judge’s erroneous factual findings colored his ultimate decision to admit Dr. Lemen’s general causation opinion. Accordingly, we remand for reconsideration and clarification consistent with this opinion.

### ***CONCLUSION***

NOW, THEREFORE, IT IS ORDERED that this matter is REMANDED for further proceedings consistent with this order. Jurisdiction is retained.