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UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

COMPLEX INNOVATIONS, LLC,

Petitioner,

v.

ASTRAZENECA AB,

Patent Owner

Case IPR2017-00631

U.S. Patent 7,759,328

REPLY TO PATENT OWNER'S PRELIMINARY RESPONSE

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Petitioner files this Reply to address the “physical impossibility” argument raised in Patent Owner’s Preliminary Response. This argument is based on the false premise that the canisters are filled entirely with liquid HFA 227, the well-known propellant claimed in the ’328 Patent.

Patent Owner primarily attacks the Petition on the basis that the canister weights asserted by Dr. Beasley and Petitioner are “a physical impossibility.” (Paper 9 at p. 1). Specifically, Patent Owner argues that because HFA 227 “has a liquid density at room temperature of about 1.4 g/mL,” filling a canister with liquid HFA 227 must yield a canister weight greater than the weights asserted by Dr. Beasley and Petitioner. (*Id.* at pp. 1, 12-15) (emphasis added).

Patent Owner improperly assumes that for a canister to be “full” it must necessarily be filled with only a liquid, and that there is only a single, liquid phase state of HFA 227 in the canister. (*Id.*). Patent Owner never states why or how it made these assumptions. Patent Owner notably fails to submit any expert testimony in support of its theory, despite the wealth of research scientists at its disposal. The closest explanation it offers is a comparison to filling a canister with liquid water, a vastly different molecule than HFA 227—this is an especially unsatisfying analogy given the lack of expert support. (*Id.* at p. 12).

And moreover, to the contrary of Patent Owner’s argument, the evidence of record shows that at least a portion of the canister is filled with HFA 227 in its

gaseous state. (*See, e.g.*, Ex. 1002 (file history), p. 132 (stating that generally “aerosol preparations” with a liquefied propellant have a “liquid phase” that “changes into the gas phase”); Ex. 1004 (Rogueda), p. 28 (describing a “propellant-gas interface” in HFA formulations)).

Further, Patent Owner’s own exhibits establish that at least a portion of the canister is filled with HFA 227 in its gaseous state. HFA 227 need not be just a liquid “at room temperature.” (*Id.*) Its boiling point, the temperature at which it turns from a liquid into a gas, or vapor, is reported at -17° Celsius, far below room temperature. (*See* Ex. 2003 at p. 7). Further, the density of HFA 227 as a vapor at around room temperature can be about 40 times lower than its liquid density. (*See* Ex. 2002, Table 3 at p. 9) (dividing densities at 293.15 Kelvin, which is around “room temperature”).

Therefore, a canister of HFA 227 at room temperature with the weights asserted by Dr. Beasley would not be solely liquid (*i.e.*, it would include a vapor or gaseous state), yet it still would be “full.” Moreover, given the composition of the canister it would have a density significantly less than Patent Attorney’s liquid-only 1.4 g/mL calculation.

In sum, Patent Owner’s “physical impossibility” argument, which permeates through the Patent Owner response, not only is unsupported by expert testimony but contradicted by the record evidence.

CERTIFICATION OF SERVICE

The undersigned hereby certifies that the foregoing Reply was served via e-mail on June 9, 2017, in its entirety, on Patent Owner's counsel at the following email addresses:

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Respectfully submitted,
HILL, KERTSCHER & WHARTON, LLP



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