RUBBER manufacturers association

1400 K Street, NW • Washington, DC 20005 • tel (202) 682-4800 • fax (202) 682-4854 • www.rma.org

May 12, 2008

Attention: Docket ID Number EPA–HQ–OPPT–2008–0273
Environmental Assistance Division (7408M)
Office of Pollution Prevention and Toxics
Environmental Protection Agency
1200 Pennsylvania Ave., NW
Washington, DC 20460–0001

Re: Comments on Mr. Michael Dochniak Section 21 TSCA Petition

Dear Sir or Madam:

The Rubber Manufacturers Association ("RMA") submits the following comments on the petition from Michael J. Dochniak filed pursuant to Section 21 of the Toxic Substance Control Act on March 6, 2008, requesting that the Environmental Protection Agency ("EPA") "establish regulations prohibiting the use and distribution in commerce of *Hevea brasiliensis* natural rubber latex (NRL) adhesives having a total protein content greater than 200 micrograms per dry weight of latex based on the American Society for Testing and Material's method ASTM D1076–06 (Category 4)" because "implementation of an EPA regulation may affect the incidence and prevalence of latex allergy and allergy-induced autism in neonates."[1] ("Dochniak Petition")

[1] EPA, *Hevea brasiliensis* Natural Rubber Latex Adhesives; TSCA Section 21 Petition; Notice of Receipt, 73 Fed. Reg. 22,368 (April 25, 2008) [EPA–HQ–OPPT–2008–0273; FRL–8361–3] ("Dochinak Petition Fed. Reg. Notice").

RMA is a not-for-profit national trade association, which represents approximately 80 member companies who manufacture goods made with rubber. A number RMA members use and distribute in commerce *Hevea brasiliensis* natural rubber latex adhesives and some members produce *Hevea brasiliensis* natural rubber latex that is used in the manufacture of adhesives. If EPA promulgates a regulation consistent with the relief requested in the Dochniak Petition, these companies would be banned from selling their products in the United States. Therefore, RMA members have a significant interest in this proceeding.

In summary, autism can be a severe medical condition that presents significant obstacles to the individual who have the condition and daunting challenges to the relatives and friends of these individuals. Rightfully, the Federal government and private groups support research into this condition. However, the allegations in the Dochniak Petition that claim exposure to natural latex rubber allergens cause autism are not supported by any peer reviewed scientific article or any original data. The allegations also do not follow the criteria for reviewing scientific information provided in EPA's Assessment Factors Document. Therefore, there is no unreasonable risk to health. Finally, the relief sought (a complete ban) is not the least burdensome requirement, as required by TSCA.

Our comments are organized as follows. Section I provides a brief background on the Petition, including a discussion of the requirements of TSCA Section 21. Section II summarizes the weight of scientific opinion concerning the allegation and the reasons that EPA

should reject the Petition. Section III summarizes the lack of evidence linking latex exposure to autism.

I. BACKGROUND ON THE PETITION

A. *Introduction*

EPA received the Dochniak Petition on March 6, 2008 and published notice of the petition on April 25, 2008. Subsection B describes the basic TSCA statutory framework. Subsection C discusses the Section 21 petition process. Subsection D summarizes the scientific factors that EPA uses in assessing such a petition.

B. *The Basic TSCA Framework*

The Toxic Substances control Act, 15 U.S.C. §§ 2601-2629, was first enacted in 1976. The overall purpose of the Act was to establish a comprehensive national system for "evaluating and regulating chemical substances to protect against unreasonable risks to human health and to the environment." *Chemical Mfrs. Ass'n v. EPA*, 359 F.2d 977, 979 (D.C. Cir. 1988); *Ausimont U.S.A., Inc. v. EPA*, 838 F.2d 93, 95 (3d cir. 1988). Section 6 of the Act authorizes EPA to impose controls on the production, distribution, use, and disposal of toxic substances if the evidence shows that such activity "presents or will present an unreasonable risk of injury to health or the environment." 15 U.S.C.§ 2605(a). Regulatory controls may include labeling guidelines, notice requirements, or restrictions on the production and distribution of toxic substances. Id. Section 4 of the Act authorizes EPA to require testing of chemical substances or mixtures if it find that such substances "may present an unreasonable risk of injury

to health or the environment" and that "there are insufficient data and experience" upon which to predict the effects of such substances. 15 U.S.C. § 2603(a)(1)(A). Lastly, section 8 authorizes EPA to impose reporting and record-keeping requirements on the manufacturers and processors of toxic substances. 15 U.S.C. § 2607; see also *Environmental Defense Fund v. Thomas*, 657 F. Supp. 302, 304 (D.D.C. 1987).

While seeking to eliminate "unreasonable risk," Congress directed EPA to exercise its authority "in such a manner as not to impede unduly or create unnecessary economic barriers to technical innovation." 15 U.S.C. § 2601(b)(3). EPA must carry out the provisions of the Act in a "reasonable and prudent manner" and must "consider the environmental, economic, and social impact of any action" taken. 15 U.S.C. § 2601(c); see also *Ausimont U.S.A., Inc. v. EPA*, 838 F.2d at 95.[2] If EPA issues rules governing the production or disposal of any toxic substance, it must consider the "reasonably ascertainable economic consequences" of potential regulatory restrictions. 15 U.S.C. § 2605(c)(1)(D). The agency must also select "the least burdensome requirements" that would be effective. 15 U.S.C. § 2605(a); see also 122 Cong. Rec. 32,828 (1976).[3]

[2] Congress required EPA to carefully consider the costs and benefits of any regulatory restrictions imposed under the Act. See S. Rep No. 698, 94th Cong. 2d Sess. 13 (1976) ("It is important to note that in the testing and key regulatory provisions of the legislation, it is specifically required that the Administrator evaluate the risks and benefits of his actions before talking regulatory action. Thus, costs are not to be incurred unless they are offset by benefits of at least the same magnitude."); 122 Cong. Rec. 32,852 (1976); see also 15 U.S.C. § 2605(c)(1).

[3] As EPA has stated, a "basic principle embodied in TSCA is that the Agency must adopt regulatory requirements which impose the smallest social and economic burden possible . . . ." Guidance for Petitioning the Environmental Protection Agency Under Section 21 of the Toxic Substances Control Act, 50 Fed. Reg. 46,825, 46,826 (1985) ("Petition Guidance").

In addition to authorizing EPA to regulate the use and disposal of all toxic substances, the Act imposes specific restrictions on the use and disposal of polychlorinated biphenyls and asbestos.

C. ***TSCA Section 21 Petition Process***

TSCA specifically provides that "[a]ny person may petition the Administrator to initiate a proceeding for the issuance, amendment, or repeal of a rule under Sections 2603, 2605, or 2607 . . . ." 15 U.S.C. § 2620(a). Such a petition "shall set forth the facts" justifying the requested relief. EPA may "hold a public hearing or may conduct such investigation or proceeding" as may be necessary. 15 U.S.C. § 2620(b)(2). EPA must either grant or deny the petition within 90 days of its filing. 15 U.S.C. § 2620(b)(3).[4] Section 21 itself does not impose a legal standard for the issuance of relief.[5] The agency's decision, therefore, must be based upon the fundamental policies underlying the entire Act. EPA's regulatory approach must be designed to eliminate any "unreasonable risk" using the least burdensome and least costly means available. 15 U.S.C. §§ 2601(b),(c), 2605(a), (c), (e).

If EPA grants a citizens petition, it must promptly initiate a proceeding under the appropriate section. 15 U.S.C. § 2620(b)(3). If EPA denies the petition, it must publish its reasons for the denial in the Federal Register. Id. Where the petition is denied, or where EPA

[4] The "remedies under this section shall be in addition to and not in lieu of, other remedies provided by law." 15 U.S.C. § 2620(b)(5).

[5] EPA has issued "guidance" on section 21 petitions, but this guidance is non-binding and is mainly procedural in nature. See Petition Guidance, supra, note 3. In its guidance, however, EPA must "balance the benefits derived from risk reduction against the social and economic costs" of regulation. Id. at 46,826.

fails to act on the petition within the prescribed 90-day period, the petitioner may seek judicial review in federal district court. 15 U.S.C. § 2620(b)(4); *Environmental Defense Fund v. Thomas*, 657 F. Supp. at 304-305.

For the Dochniak Petition, EPA must respond by June 3, 2008. EPA is allowing public comment until Monday, May 12, 2008.[6]

D. ***EPA Uses Generally Accepted Sciencific Principles To Assess Data***

EPA's notice of the Latex Adhesive Petition states that EPA uses the "Assessment Factors Document" to evaluate data quality. These Factors include:

> "***Soundness*** *- The extent to which the scientific and technical procedures, measures, methods or models employed to generate the information are reasonable for, and consistent with, the intended application.*
>
> ***Applicability and Utility*** *- The extent to which the information is relevant for the Agency's intended use.*
>
> ***Clarity and Completeness*** *- The degree of clarity and completeness with which the data, assumptions, methods, quality assurance, sponsoring organizations and analyses employed to generate the information are documented.*
>
> ***Uncertainty and Variability*** *- The extent to which the variability and uncertainty (quantitative and qualitative) in the information or in the procedures, measures, methods or models are evaluated and characterized.*
>
> ***Evaluation and Review*** *- The extent of independent verification, validation and peer review of the information or of the procedures, measures, methods or models."*[7]

---

[6] Dochinak Petition Fed. Reg. Notice, 73 Fed. Reg. at 22,369.

[7] EPA Science Policy Council, A Summary of General Assessment Factors for Evaluating the Quality of Scientific and Technical Information at 4 (EPA 100/B-03/001, June 2003) ("Assessment Factors Document") (available at <http://www.epa.gov/OSA/spc/pdfs/assess2.pdf>) was prepared under the auspices of the EPA Science

(continued...)

The Assessment Factors Document "complements the Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency."[8] The EPA Information Quality Guidelines "involves a 'weight-of-evidence' approach that considers all relevant information and its quality, consistent with the level of effort and complexity of detail appropriate to a particular risk assessment."[9] EPA relies upon "the best available science and supporting studies conducted in accordance with sound and objective scientific practices, including, when available, peer reviewed science and supporting studies," "data collected by accepted methods or best available methods, and use of comprehensive, informative information.[10]

Scientific causation "can be answered only through … formulating a question that can be answered, designing a study that can answer it, collecting objectively verifiable evidence that will address the question, and drawing only those conclusions supported by the evidence."[11]

(continued...)

Policy Council (SPC) to describe the assessment factors and considerations generally used by the Agency to evaluate the quality and relevance of scientific and technical information. Id. at iv.

[8] Id. at 1.

[9] Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by the Environmental Protection Agency at 21 (EPA/260/R-02-008), available at <http://www.epa.gov/QUALITY/informationguidelines/documents/EPA_InfoQualityGuidelines.pdf.>.

[10] Id. at 22.

[11] Brief of Amicus Curiae The New England Journal of Medicine and Marcia Angell, M.D., In Support of Neither Petitioners Nor Respondents at 5, in General Electric Co. v. Joiner, 522 U.S. 136, 118 S. Ct. 512 (1997).

However, if the theory passes the test, it "is not confirmed, but merely corroborated."[12] Causation is determined after an evaluation of the weight of all the scientific evidence in light of: (1) the temporal relationship;[13] (2) consistency of the effect across different studies;[14] (3) the magnitude of the theoretic incidence of disease in an exposed population compared to an unexposed or less exposed population (called relative risk) found in the studies (i.e., preferably there is a relative risk ratio[15] of greater than 2.0);[16] (4) whether there is a biological gradient between the level of exposure and the magnitude of the effect (that is, does higher exposure

[12] National Academy of Sciences proceeding on scientific evidence workshop: Science, technology, and law program at 12 (September 2000), *at* http://www7.nationalacademies.org/stl/Scientific_Evidence_PDF.pdf ("NAS Scientific Evidence Workshop").

[13] The adverse health effect has to occur within a biologically reasonable time after initial exposure. Because some adverse health effects are believed to become manifest only after a latency period, the determination of temporal effect is not always straightforward.

[14] The strongest association occurs when the same effect in the same organ with the same biological mechanism is observed in several independent studies of a similar exposure in different populations. The association may be strong if it consistently occurs in different subgroups in the same study. Bias and confounding factors need to be taken into account in reviewing multiple studies.

[15] The relative risk is the ratio of the risk of disease or death among the exposed population to the risk in the unexposed population.

[16] A statistically significant relative risk of 2.0 means that the more exposed population had twice the rate of disease than expected from an examination of a population that was not exposed or significantly less exposed. Thus, in those situations where, based on the weight of the evidence, the exposure caused an increased relative risk of 2.0, any one individual in the exposed population would have a 50% probability of having their disease caused by the exposure. J. Rosenbaum, *Lessons from Litigation over Silicone Breast Implants: A Call for Activism By Scientists*, Vol. 276, SCIENCE, No. 5318, Issue 6, p. 1524 (June 6, 1997), *at* http://www.sciencemag.org/content/vol276/issue5318/.

According to US EPA, "when a relative risk is less than 2, if confounders [i.e., other potential causes of the disease being studied]… are having an effect on the observed risk increases, it could be enough to account for the increased risk." US EPA, Health Assessment Document for Diesel Engine Exhaust at 7-138 (EPA/600/8-90/057F, May 2002), *at* http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=29060.

result in a higher incidence of disease);[17] (5) the specificity of the association;[18] (6) the biological plausibility that the exposure could cause the effect;[19] and (7) coherence.[20] Thus, a statistical association in one or even a few studies is typically not sufficient to determine that an exposure caused cancer, unless the cancer is rare and the risk ratio is very large.

Thus, there are well established data evaluation rules that EPA must follow.

E. ***The Requested Relief – Banning the Use or Impact of "Latex Adhesives"***

In this case, the Petitioners request that EPA totally ban the use or sale in interstate commerce of "latex adhesives". Even if there were a risk, which, in any event, is not supported by the scientific evidence, there are many less burdensome approaches than a ban.

[17] Generally, the risk ratio should increase with increasing exposure or dose.

[18] For most chemicals, exposure results in a specific type of disease or adverse health outcome. It is generally considered less biologically plausible to hypothesize a substance that would cause an increase in all diseases or all cancers.

[19] Biological plausibility is the factor that is both conceptually simple to understand, yet difficult to apply. The mechanism for many diseases is not yet fully understood. Generally, toxicologists evaluate data from animal studies, the toxicokinetics of the substance (i.e., how the chemical moves through the body and interacts with cells), the structure-activity relationship compared to other known carcinogens, and the data from short-term studies of the agent's influence on biological steps known or believed to occur.

[20] Evaluating coherence involves comparing the assumed cause-and-effect relationship with what is known about the history and biology of the disease, i.e., the entire body of knowledge about the agent. Some authors do not include coherence as a separate factor. The A.B. Hill. criteria have long been recognized as the key criteria to assess causality.

II. THE WEIGHT OF SCIENTIFIC OPINION FAVORS A FINDING THAT EXPOSURE TO NATURAL LATEX RUBBER DOES NOT CAUSE AUTISM

The Dochniak Petition alleges that: (a) natural rubber latex "has seen a dramatic increase in usage over the last 30-years;" (b) this timing coincides with an increase in the diagnoses of autism; and (c) natural rubber latex causes allergic reactions in the general population. The petition also makes a number of unsupportable statements such as "an immune response associated with Hev-b proteins may induce IgE-secreting lymphocytes to form antibodies that target dissimilar exogenous/endogenous proteins through the cross-react mechanisms." Autism spectrum disorders Exogenous protein insult article at 545-46.

The risk assessment process generally requires: (a) a hazard identification (i.e., the substance at some plausible exposure level is capable of causing the adverse health impact), (b) evidence of exposure; (c) a dose-response (i.e., evidence that there is scientific correlation between exposure and the adverse response); and (4) the risk characterization (i.e., the quantitative risk from the likely exposure). None of these elements have been met.

The allegations in the Dochniak Petition are just that -- unsupported and unsupportable allegations. Given the short period of time available to review the material, the RMA provides the following preliminary list of fundamental problems with the allegations. This list is not complete.

1. The paper attached to the Dochniak Petition is not a peer reviewed journal ("TSCA Petition Paper").

The TSCA Petition Paper is published in "Medical Hypotheses." The editors of Medical Hypothesis candidly state that this publication takes a deliberately different approach to review. Most contemporary practice tends to discriminate against **radical ideas** that conflict with current theory and practice. "**Medical Hypotheses will publish radical ideas**, so long as they are coherent and clearly expressed. Furthermore, traditional peer review can oblige authors to distort their true views to satisfy referees, and so diminish authorial responsibility and accountability. In Medical Hypotheses, the authors' responsibility for the integrity, precision and accuracy of their work is paramount."[21] (bold face and red highlighting added).

According to the author's web site, the "costs of publication of the Med. Hypotheses article were defrayed in part by the payment of page charges. This article must therefore be hereby marked advertisement in accordance with 18 U.S.C.Section 1734 solely to indicate this fact.)"[22] In short, this is a radical theory propounded by the author. By definition, publication in Medical Hypothesis means that this "radical" allegation in the TSCA Petition Paper is not generally accepted and does not follow scientifically sound, reproducible methodology. The TSCA Petition Paper does not even attempt to statistically correlate increased use (however defined) with increases in autism. In the field of Autism diagnosis, there has been considerable increase in physicians' ability to detect autism in the last 30 years. But even if there

[21] Available at <http://www.elsevier.com/wps/find/journaldescription.cws_home/623059/description#description>).

[22] Available at (http://www.autismdoc.org/page2.html).

is a component of increased risk that is not due to better diagnoses, it could be due to other confounding factors, not latex.

2. The TSCA Petition Paper provides no new data, but paraphrases other published articles, newspaper articles and web sites.

The TSCA Petition Paper cites no original data, and citations to newspaper articles, press releases and other nonscientific sources of information are not the type of "scientific evidence" that EPA's Assessment Factors Document and Information Quality Guidelines permit EPA to be rely upon in promulgating a TSCA rule.

3. No peer reviewed scientific articles support a relationship between exposure to natural latex rubber and autism.

The assertions made in the Dochniak Petition are not supported by any scientific evidence or generally accepted scientific methodology. A search of Medline yielded no peer reviewed scientific studies that found a correlation between exposure to natural latex proteins and autism. Similarly, a search of the National Institute of Environmental Research and EPA web sites found no research investigating a hypothetical link between exposure to allergenic natural rubber latex proteins and autism.[23] RMA is not aware of any other article (peer reviewed or not) that demonstrates a correlation between exposure to natural latex proteins and autism.

[23] Obviously, there is research on autism generally and nothing in this comment on the Dochniak Petition suggests otherwise. However, no researcher, as far as RMA can determine, has deemed testing this allegation worth the expenditure of limited research funds.

The Food and Drug Administration,[24] the Consumer Product Safety Commission,[25] the National Institute of Occupational Safety and Health,[26] the American Conference of Governmental and Industrial Hygenists ("ACGIH") (2008),[27] and the Occupational Safety and Health Administration[28] have investigated allergic reactions to natural rubber latex proteins, primarily from dipped rubber products (discussed below). None of these agencies (although focused on allergic reactions from exposure to natural rubber latex) found a link to autism. Natural rubber latex has been utilized for over a hundred years without any observation of a link (even among the rubber farms and latex processor workers who have significantly higher levels of exposure).

---

[24] FDA, Natural Rubber-Containing Medical Devices; User Labeling, 62 Fed. Reg. 51,021 (September 30, 1997). This rule covers medical adhesives that are in contact with humans. Id. at 51,024.

On 12/20/2007, Michael J. Dochniak (the author of the Dochniak TSCA Petition that is the subject of this comment) also filled a petition (2007P-0486) requesting the issuance of a regulation for *Hevea Basiliensis* natural-rubber-latex, used in the manufacture of infant products (available at <http://www.fda.gov/ohrms/dockets/CITPETS/07citpetlist.htm>. It is pending.

[25] Letter from Todd Stevenson, Secretary of CPSC to Ms. Debra Adkins, Petitioner, re: Denying the petition requesting the CPSC to declare natural latex rubber a strong sensitizer at 2 (June 4, 2004), in part because exposure to consumer products containing natural latex rubber (including adhesives) resulted in few documented cases of allergic reactions and most were from medical devices within the jurisdiction of the FDA.

[26] NIOSH, Alert, Preventing Allergic Reactions to Natural Rubber Latex in the Workplace (June 1997, DHHS (NIOSH) Publication No. 97-135), available at <http://www.cdc.gov/niosh/latexalt.html>.

[27] The ACGIH threshold limit value ("TLV") for natural latex is 0.0001 mg/m^3, as Inhalable allergenic proteins. ACGIH, Natural Rubber Latex: TLV® Chemical Substances 7th Edition Documentation (Publication #7DOC-720)(2008), available at <http://www.acgih.org/store/ProductDetail.cfm?id=1706>). This review did not find any relationship between autism and natural latex rubber.

[28] OSHA, Technical Information Bulletin – Potential for Allergy to Natural Rubber Latex Gloves and other Natural Rubber Products (April 12, 1999). See OSHA, Hospital eTool - HealthCare Wide Hazards Module Latex Allergy, available at <http://www.osha.gov/SLTC/etools/hospital/hazards/latex/latex.html >.

4. The TSCA Petition Paper does not define, quantify or correlate exposure to allergenic natural rubber latex proteins and autism (even though the Dochniak Petition repeatedly claims some relationship between allergenic natural rubber latex proteins and the increase in the diagnosis of autism)

Exposure is essential both to identifying a hazard, as well as calculating the risk. Here, there simply is no effort to define or calculate exposure and correlate that exposure to the rates of autism. Even some of the allegations concerning exposure to natural latex rubber are incorrect, imprecise or unavailable.

First, contrary to the statements in the Petition, use of natural rubber latex in the US has not dramatically increased.[29]

Second, the Dochniak Petition does not provide any evidence that natural rubber latex allergens are transported from natural latex rubber adhesives into humans and, if so, at what levels. Exposure requires evidence that there is a significant release of latex allergens from adhesives and that these allergens enter the human body at significant level.

Third, the TSCA Petition Paper fails to distinguish between natural latex proteins from dry rubber and dipped rubber, which are the two basic types of materials used to produce NRL products. The different processes involved in producing dry rubber or dipped latex rubber

[29] According to the Rubber Manufacturers Association, Factbook 2006, US Tire Shipment Activity Report For Statistical Year 2005, the use of total US rubber consumption has increased 18.6% from 1970 to 2003 (an average of 0.56% per year). Similarly, FAO indicated that use of natural rubber in US would decrease from 2000 to 2010. The Food and Agricultural Organization of the United Nations, FAO Corporate Document Repository, available at http://www.fao.org/docrep/006/y5143e/y5143e1d.htm>). Much of these long term increases are due to increases in population and, therefore, would not necessarily result in an increase in the average exposure to individuals.

products result in dry rubber products having very low levels of bioavailable NRL proteins compared to most dipped latex products.

Products made from liquid latex are usually very thin, pliant, and elastic. Examples of these types of products include gloves, condoms, and balloons. These products are made by dipping glass or porcelain molds into the liquid latex and allowing the latex to dry on the mold. The dipping process is repeated a defined number of times to achieve the desired thickness (Subramaniam 1995). It has been demonstrated that dipped latex products contain extractable NRL allergens that may become bioavailable under certain conditions (Alenius et al. 1994; Yip et al. 1994; Yunginger et al. 1994; Lu et al. 1995; Yunginger 1995).

Products made from dry rubber are thicker, less pliant, and sometimes very rigid. Examples of dry rubber products include tires, hoses, belts, ^ sports equipment, balls, and some baby pacifiers and bottle nipples. Dry rubber products are produced via a process that includes extremes of heat and pH, extensive processing, and the addition of a large proportion of fillers (Subramaniam 1995). NRL proteins in dry rubber products are largely denatured, diluted, and immobilized to a far greater extent than in products formed from liquid latex (Yip et al. 1994; Yunginger et al. 1994; Yunginger 1995). In fact, most dry rubber products that have been tested have had no detectable levels of latex allergens (Yip et al. 1994; Yunginger et al. 1994; Yunginger 1995; Thomsen and Burke 2000) and did NOT elicit strong allergic reactions in sensitized patients when challenged with a skin prick test with an extract from the various dry rubber products and dry rubber compound mixtures (Yip et al. 1994) (*see* Table 1 below).

Table 1: Extractable Latex Allergens from Rubber Products

RUBBER PRODUCT	ALLERGENIC RESPONSE (skin-prick test)	ALLERGEN (AU/ml)
SMR CV/vulcanisate[a]	0	NA
SMR L/vulcanisate[a]	0	NA
SMR 10/vulcanisate[a]	0	NA
SMR 20/vulcanisate[a]	0	NA
Hot Water Bottle	0	NA
Divers Flippers	0	NA
Latex Glove (dipped)	100	NA
Baby pacifier	NA	<5
Baby bottle nipples	NA	<5
Intravenous tubing	NA	<5
Rubber ballons (dipped)	NA	4,7000

a. Yip et al. 1994
b. Yunginger et al. 1994
NA: Not assessed
SMR: Standardized Malaysian Rubber
SMR CV: Standardized Malaysian Rubber – viscosity stabilized rubber
SMR L: Standardized Malaysian Rubber – light-colored rubber
SMR 10 and 20: Standardized Malaysian Rubber that is graded based on the amount of dirt in the rubber sample.

As noted below, the difference in the level of potential exposure to bioavailable NRL between dipped latex products in the health-care setting and dry rubber products in consumer products is magnified even more by the differences in the exposure scenarios.

Precisely because a small percentage of individuals in the population are allergic to natural latex rubber, there is less likelihood that significant exposure can occur from natural latex rubber adhesives. Either the adhesive is not in contact with the public or the adhesive contacts the skin and contact dermatitis alerts the person wearing the adhesive of the allergy. As a result, there is unlikely to be long term exposure to natural latex rubber in adhesives. Finally,

if there was exposure to adhesives, it would primarily be through medical bandages that use adhesives and RMA believes that FDA, not EPA, would have jurisdiction.

In summary, it is not clear there has been a significant increase in the use of natural latex rubber in adhesives. Although there was an increase in the use of latex surgical gloves (a dipped rubber product) to protect the health of health care workers, this does not mean that there was a similar increase in the use of dry rubber products (which have not had a dramatic increase in use). The TSCA Petition Paper fails to acknowledge that there has been a dramatic decrease in the use of latex gloves.

5. More generally, the allegation in the Dochniak Petition is that all allergens may be related to autism, not just allergenic natural latex rubber proteins, therefore, any evaluation would need to examine (equally) all allergenic substances (natural and manmade), rather than focus on just natural latex rubber.

The allegation presented in the TSCA Petition Paper is that there is a link between any allergic reaction and autism. Many substances including ragweed and other prevalent allergens stimulate the same type of allergic reactions as allergenic natural latex rubber proteins. Ignoring the lack of evidence for this allegation, the implication is that every allergic reaction would impact autism. Additionally, the fact that the Dochniak Petition supports multiple allergens undercuts the allegations in the Petition that natural latex rubber in adhesives cause autism.

6. The Dochniak Petition does not demonstrate a dose-response between natural latex rubber allergens and autism

It is essential to a determination of an unreasonable risk to develop a dose-response. No such demonstration is even attempted in the Dochniak Petition.

7. The Dochniak Petition fails to address the numerous confounding factors that would need to be assessed in determining whether exposure to natural latex rubber allergens causes autism.

8. In many cases, the citations provided in the TSCA Petition do not support the corresponding allegations in the text.

For example, the paper states that "In humans, repeated exposure to the Hev-b proteins during pregnancy may affect the genetic code of immune cells possibly making the fetus more susceptible to ASD [7]" at 546. Reference 7, however, is a newspaper article about a study that found "Expectant mothers suffering from asthma, allergies or a type of skin disease have a higher risk of giving birth to an autistic child" and "there was no statistical link between autism in children and 44 auto-immune diseases in mothers, including rheumatoid arthritis, lupus and multiple sclerosis." The article states that the researchers "speculated that there may be a common underlying genetic cause to such ailments as asthma and autism." Nothing in this news article refers to repeated exposure to Hev-b proteins.

Also, the TSCA Petition Paper states:

> In genetic research, studies continue to find mutations associated with immunity that may affect the incidence of allergy induced autism. Several candidate gene loci are described below: Chromosome-1 [1q23, Fc fragment of IgE] [30]; Chromosome-11 [11q12-q13, IgE responsiveness][31]; and Chromosome-19 [19p13.3, CD23] [32].

Reference 31 (which has a slightly different title) does not discuss natural rubber, latex or autism. Rather the article cited in Reference 31 describes "the chromosomal localization of the

gene for squamous cell carcinoma-associated reactive antigen for cytotoxic T cells (SART-1)." Likewise, Reference 32 is a press release entitled: “Key molecular signaling switch involved in allergic disease identification.”[30] Finally, Reference 30 is an abstract of a poster of a study of the genetic component or nature of autism. In fact, the study connected 21 Finnish autism families by genealogical links extending to 17th century. It does not mention natural rubber or latex.

In other cases, the text of the paper cites a series of statements and implies that they lead to a conclusion that there is a connection between natural latex protein exposure and autism. For example, the paper states that

> homologous enolases from yeasts, molds, and fungi are known to cross-react with Hev-b 9 [22]. Studies indicate that elevated levels of Candida Albicans in some autistic individuals may exacerbate many behavior and health problems, especially those with late-onset autism [23]. A Hev-b 9 induced cross-react immune response to exogenous enolases may further affect allergy induced autism.

Reference 23, however, does not even mention Hev-b 9. As the quote indicates, the web site in Reference 23 simply states that exposure to Candida Albicans in some people may aggravate symptoms. In fact, the web site states that "treatment for candida albicans infrequently results in a cure for autism." As written, the paper is misleading.

[30] Available at <http://hmg.oxfordjournals.org/cgi/content/full/11/18/2143>). <www.sciencedaily.com/releases/2006/10/061029174930.htm/> (October 30, 2006).

III. THERE IS NO EVIDENCE TO DEMONSTRATE A CAUSAL LINK BETWEEN EXPOSURE TO NATURAL LATEX RUBBER ADHESIVES AND AUTISM

EPA guidance requires sound, applicable, and complete evidence that follows generally accepted scientific principles. The evidence on the Petition fails to meet any of these criteria. In fact, there is no scientific evidence of an unreasonable risk of autism from exposure to natural latex rubber allergens from adhesives.[31] The relief being sought in the Dochniak Petition on natural rubber latex adhesive products does not meet TSCA's "least burdensome" requirement. For example, in the case of latex used in health care (e.g., rubber gloves), the FDA simply required labeling latex containing items to warn health care workers of the potential for an allergic reaction.

RMA appreciates the opportunity to comment and urges EPA to consider these comments. Please feel free to contact us if we can provide you with any further information.

Yours truly,

Tracey J. Norberg
Senior Vice President
Rubber Manufacturers Association

[31] Latex rubber may even *reduce* the symptoms of autism, according to one member of the Autistic Society who has successfully used "trance suits," i.e., inflatable natural latex rubber suits. Autistic Society Internet Page, available at <www.autisticsociety.org/Forums/viewtopic/t=1920/view=previous.html>.

cc: Colby Linter, Regulatory Coordinator, Environmental Assistance Division (7408M), Office of Pollution Prevention and Toxics, Environmental Protection Agency

Gerry Brown, Chemical Control Division (7405M),Office of Pollution Prevention and Toxics, Environmental Protection Agency

REFERENCES

Alenius et al. 1994: Alenius, H., S. Makinen-Kiljunen, K. Turjanmaa, T. Palosuo, and T. Reunala. 1994. Allergen and protein content of latex gloves. Ann. Allergy 73(4):315–320.

Lu et al. 1995: Lu, L.J., V.P. Kurup, J.N. Fink, and K.J. Kelly. 1995. Comparison of latex antigens from surgical gloves, ammoniated and nonammoniated latex: Effect of ammonia treatment on natural rubber latex proteins. J. Laboratory Clin. Med. 126(ISS 2):161–168.

Subramaniam, A. 1995. The chemistry of natural rubber latex. Latex Allergy 15(1):1–20.

Yip et al. 1994: Yip, E., K. Turjanmaa, K.P. Ng, and K.L. Mok. 1994. Allergic responses and levels of extractable proteins in NR latex gloves and dry rubber products. J. Nat. Rubb. Res. 9(2):79–86.

Yunginger, J.W. 1995. Variances in antigenicity of latex Products. Immunology and Allergy Clinics of North America 15(1):61–70.

Yunginger, J.W., R.T. Jones, A.F. Fransway, J.M. Kelso, M.A. Warner, and L.W. Hunt. 1994. Extractable latex allergens and proteins in disposable medical gloves and other rubber products. J. Allergy Clin. Immun. 93(5):836–842.