COMMENTS OF THE AMERICAN ZINC ASSOCIATION TO THE COMMISSION FOR ENVIRONMENTAL COOPERATION OF NORTH AMERICA CONCERNING A DRAFT REPORT,
"TAKING STOCK A SPECIAL REPORT ON TOXIC CHEMICALS AND CHILDREN'S HEALTH IN NORTH AMERICA"

Introduction

The American Zinc Association ("AZA") represents producers of zinc metal, zinc oxide and zinc dust selling in the United States, as well as certain consumers of zinc products. AZA's members include four Canadian producers of zinc metal and one Canadian oxide producer, four U.S. producers of zinc metal and one of zinc oxide and dust, and two Mexican producers of zinc metal plus one oxide producer. AZA welcomes the opportunity to submit these comments on the above-referenced draft ("Draft").

AZA shares the Draft's basic concern for the health of children. It is because of that concern that AZA and the zinc industry worldwide have worked for years with health professionals, health publications and the public to spread the word to parents and other decision-makers that children need adequate dietary zinc to develop in a sound, healthy way. The zinc industry is constantly looking for new ways to convey the incontrovertible message that zinc deficiency in children is a major global health concern. Unfortunately, the Draft undercuts these efforts.

The Draft should be entirely discarded because, inter alia,

(i) the Draft is directly contradicted by its own announced source material with respect to listing "zinc (and its compounds)" as the largest "suspected neurotoxicant";

(ii) the Draft's listing of "zinc (and its compounds)" as the second-largest known or suspected developmental toxicant is also grossly incorrect; and

(iii) the Draft itself may exacerbate what is a real public-health problem in children--zinc deficiency-- by frightening parents into withholding needed dietary zinc from children.

As to zinc being a suspected neurotoxicant, the Draft got it wrong

Table 11 of the Draft (at 44) lists "Zinc (and its compounds)" as the largest volume "suspected neurotoxicant." The Draft (at 27) states that its list of "suspected neurotoxicants" in Table 11 was culled from a "Scorecard" prepared by Environmental Defense and available at www.scorecard.org. However, a review of the Scorecard reveals that only two very-low-volume zinc compounds (zinc phosphide and zinc bis) are listed in the Scorecard -- zinc itself and most zinc compounds are simply not there.[1] Moreover, AZA believes the volume of releases in Table 11 is not the volume for the two low-volume compounds--zinc phosphide and zinc bis--listed in the Scorecard. So, a number of monumental blunders occurred somewhere between the Scorecard and the Draft.

[1] Even with those two small-volume compounds, the problem is not the zinc but with, e.g., the phosphide.

The Draft's listing of "Zinc (and its compounds)" as the largest "suspected neurotoxicant" is directly refuted by the source upon which the Draft specifically relies. As a result, the Draft is demonstrably and fundamentally wrong. The Draft can't be fixed; it should be scrapped.

As to zinc being a developmental toxicant, the Draft got it wrong again

Whoever prepared the Draft was similarly sloppy on this point. The Scorecard lists zinc and, separately, one compound (zinc sulfate) as suspected developmental toxicants. But Table 7 (at 34), again claimed to have been prepared from the Scorecard (at 27), takes zinc and the separately listed zinc sulfate and by another bit of alchemy transmutes these into "zinc and its compounds" as the second-largest known or suspected developmental toxicant, even though the Scorecard lists only zinc and, separately, only one discrete compound. Again, in translation from the Scorecard to the Draft, huge mistakes were made.[2]

In addition, the Scorecard lists SARA as the source of its alleged concern over zinc being a suspected developmental toxicant. However, under SARA, it is only "zinc (fume or dust)" that is reportable, not all zinc. Both the Scorecard and the Draft fail to note this essential limitation, which is specifically pointed out by EPA on its TRI Reporting Form and Instructions II-1 :

> "Certain EPCRA Section 313 chemicals listed…have parenthetic 'qualifiers.' These qualifiers indicate that these EPCRA Section 313 chemicals are subject to the section 313 reporting requirements if manufactured, processed, or otherwise used in a specific form or when a certain activity is performed. The following chemicals are reportable only if they are manufactured, processed, or otherwise used in the specific form(s) listed below:
>
> | **Chemical** | **CAS Number** | **Qualifier** |
> |---|---|---|
> | | ********* | |
> | **Zinc** (fume or dust) | 7440-66-6 | **Only** if it is in a fume or dust form." |
>
> (Emphasis in the original).

And with respect to zinc sulfate, AZA is simply baffled as to why this compound is singled out in the Scorecard at all. Zinc sulfate is Generally Recognized as Safe ("GRAS") by the U.S. Food and Drug Administration for consumption by animals and humans as a nutritional or dietary supplement. 21 CFR 582.80, 582.5997. One can legitimately ask how a nutritional or dietary supplement recognized as GRAS for animal and human consumption could be called a suspected developmental toxicant.

What makes the inclusion of zinc sulfate even more puzzling is the fact that zinc sulfate is often used in children's vitamins to supply the U.S. Recommended Dietary Allowance

[2] Presumably, the volume of releases in Table 7 for "zinc and its compounds" includes releases of zinc oxide, the largest-volume zinc compound. Since the Scorecard does not mention zinc oxide, Table 7's numbers are most likely incorrect on this score as well.

of zinc to children.[3] Zinc sulfate as a supplement improves development, not the other way around. Another example of the glaring flaws in the Draft and the Scorecard.

These fundamental failures on this point mean the Draft can't be fixed; it should be scrapped.

As to zinc causing health problems in children, the Draft has it exactly backwards
The Draft can be searched wholly in vain for even a hint that zinc is an essential nutrient for children. In fact, it is more than a little ironic that the Draft describes "diet" (at 6) and "low weight births" (at 8) as causes of infant and child mortality without mentioning that research has conclusively shown zinc deficiency – not toxicity – is central to both poor diets and deaths from low birth weight. If that were not enough, the Draft's own references again show what a slipshod job was done with respect to zinc:

> "These disparities in health are known to result from a number of factors, most of which are related to poverty, and are not completely understood nor necessarily the same from one country to another (Black et al. 2003)." (Draft at 8).

Apparently, whoever compiled the Draft chose, for whatever reason, to ignore the portion of Dr. Black's cited article from which this conclusion was drawn that has this specifically to say about zinc:

> "In children with vitamin A deficiency, the risk of dying from diarrhea, measles, and malaria is increased by 20-24%. Likewise **zinc deficiency increases the risk of mortality** from diarrhea, pneumonia, and malaria by 13-21%....Correct classification of undernutrition and vitamin A and **zinc deficiencies as underlying causes of death** will permit a true estimate of the importance of these conditions and recognize that interventions can target both the nutritional condition and the resulting terminal infectious diseases." (Black et al., *Lancet* 361: 2229)(Emphasis added).

The problem of zinc deficiency is even more serious than this, however:

> "According to WHO data, in the developing countries approximately 206 million children under 5 years of age, representing 38% of young children from those areas, are zinc deficient." [4]

Zinc deficiency in children is not only prevalent, it also kills. A recent study estimates that 459,000 children under five years of age who die annually worldwide could be saved with zinc supplementation.[5] Again, nowhere in the Draft is anything about zinc saving

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[3] Of course, since the Draft nowhere mentions that zinc is an essential for sound health in infants and children, nor does it mention any recommended dietary allowance for zinc, the inclusion of zinc sulfate in the Scorecard is not truly surprising, but, rather, is another example of the flimsiness of the overall research and approach.

[4] Black, R.E., et al. 2002. The Emerging Roles of Zinc in Infant Nutrition, Development, and Infectious Diseases: Part 2, *Nutrition Today*, 37 (5): 196-97. This is the same Dr. Black cited in the Draft.

[5] Jones, G., et al., 2003. How Many Child Deaths Can We Prevent This Year?, *Lancet* 362: 67. It is estimated that 20% of the Mexican population is at risk of zinc deficiency. International Zinc Nutrition Consultative Group, 2004. Assessment of the Risk of Zinc Deficiency in Populations and Options for its Control, www.izincg.ucdavis.edu/publications/FNBv25n1supp2zinc.pdf: S193. This group is established

children's lives mentioned, or even hinted. This stark omission seems to call into question the Draft's stated (at v) intent "to ensure that we are adequately assessing, preventing and reducing risks to our children's health wherever possible."

AZA is deeply concerned that parents reading the Draft (or press accounts) will be fearful of giving their children what CEC claims are the second-largest developmental toxicant and the largest suspected neurotoxicant in North America, and real, not imagined, children's health problems of zinc deficiency will be exacerbated as a result of CEC's actions.

The Draft puts CEC's credibility on the line regarding zinc

The danger inherent in the Draft's failure to warn parents about zinc deficiency should not be viewed by CEC as a novel or fanciful claim by AZA. By letter dated July 24, 2001, AZA cautioned CEC about this same problem in CEC's "Taking Stock 1998":

> "AZA is very concerned that pregnant women reading 'Taking Stock' will take inadequate zinc as a result of CEC's statements, with attendant lower birth weights in their babies. AZA hopes CEC will issue a correction on this point, and will not repeat this, or any of the other statements with which AZA takes issue in future editions of 'Taking Stock.' "

In reply, CEC, by letter of August 17 from Erica Phipps, thanked AZA for its comments, "specifically with regard to the information…on the health effects of zinc. We will take your comments into consideration in the next development of the *Taking Stock* series." As a result, CEC, in fact, agreed to change its ToxFaqs to indicate that "insufficient zinc during pregnancy may lead to growth retardation in babies." Unfortunately, CEC has apparently forgotten its commitment to women and children on this point, as the Draft--while citing the problem of low birth weight (at 8)--nowhere mentions zinc's positive role in growth.[6] Taken together with all the other huge flaws in the Draft, AZA wonders what CEC's agenda for children's health truly is.

Conclusion

The Draft has many other shortcomings, and AZA is certain others will supplement the list of serious problems shown above.[7] AZA is pleased that the Draft and comments such as those submitted here will be referred to a scientific panel for review. AZA fully expects that panel will be as alarmed as AZA is by the fundamental errors in the Draft

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by the United Nations University Food and Nutrition Programme and the International Union of Nutrition Sciences. If the Draft (at 86) is correct that there are 11.1 million children ages 0-5 in Mexico, 2.2 million Mexican children in that age group alone are at risk of zinc deficiency and its attendant health problems.

[6] Curiously, despite the fact that zinc (and its compounds) are number one on the Draft's suspected neurotoxicant list, and number two on the known or suspected developmental toxicant list, nowhere in the Draft is any example (if one existed) of zinc's adverse health effects on children ever mentioned. This seems to point to the lack of any valid connection between the volume of releases and effects on children's health as respects zinc.

[7] For example, AZA is certain others will raise the issue of the lack of exposure to zinc and other metals by children as a result of many of the releases being in industrial processes or mining where children are simply not placed at risk.

and the danger posed to children's health by the Draft with respect to zinc, and believes the panel will conclude the Draft was an expensive mistake.

If the CEC wishes to look at the real health problem of zinc deficiency in children, AZA and its members will be pleased to work with CEC to broadcast the message that zinc deficiency is a real threat to children's health, and that children need zinc for healthy lives.

Washington, DC
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SUPPLEMENTAL COMMENTS OF THE AMERICAN ZINC ASSOCIATION ON THE DRAFT "TAKING STOCK A SPECIAL REPORT ON TOXIC CHEMICALS AND CHILDREN'S HEALTH IN NORTH AMERICA"

The American Zinc Association ("AZA") submits these brief supplemental comments on the above-referenced draft ("Draft") as a result of developments subsequent to the filing of AZA's initial comments, to expand on a point made in AZA's earlier, more-extensive comments.

The Draft (at 2) states that it "is one of the planned activities (activity 3.2) described in the CEC's *Cooperative Agenda for Children's Health and the Environment*" ("Agenda"). Looking at the Agenda, however, shows that the Draft was part of a larger item 3 entitled

> "**3. EFFECTS OF EXPOSURE TO TOXIC SUBSTANCES INCLUDING PESTICIDES**
> Exposures to toxic substances, including pesticides, have been linked to causes of childhood death, illness and hospitalization. Council Resolution 00-10 directed the CEC and its member countries to focus on the effects of exposure to toxic substances as a priority for cooperative action to protect children from environmental threats." (at 15).

Council Resolution 00-10, similarly, is specific in directing the CEC Secretariat to "focus…on…the effects of exposure to other toxic substances." And, the Draft (ibid.) acknowledges that the Agenda "has an initial focus on…the effects of exposure to…other toxic chemicals."

As AZA stated in its previous comments,

> "Curiously, despite the fact that zinc (and its compounds) are number one on the Draft's suspected neurotoxicant list, and number two on the known or suspected developmental toxicant list, nowhere in the Draft is any example (if one existed) of zinc's adverse health effects on children ever mentioned." (n. 6).

So, while the Council Resolution and the Agenda itself directed that the Draft focus on "effects of exposure," the Draft is utterly silent on effects of exposure to zinc, the number-one and number-two listed toxicant, in derogation of the stated purpose of the Draft.[1]

The Draft, then, is simply not what was ordered, and should not--and need not--be allowed to substitute for what the Council concluded was needed. Had the Draft been as intended and directed, a study of "effects of exposure," zinc would not be involved in this process at all. Again, the Draft can't be fixed to comport with its purpose; it must be scrapped.

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[1] The Draft (at vi) is careful to caution that "PRTR data are releases and transfers of chemicals, and do not necessarily reflect exposures to the public of these chemicals."

Washington, DC
June 4, 2004

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