

Update on perchlorate environmental issues

Dear Editor,

Led by political figures and activist groups in California, there is yet another push to apply a national drinking water standard for perchlorate exposure. While California has certainly been most affected by the mis-handling of perchlorate, the problems being addressed in that state do not reflect the reality of perchlorate occurrence and exposure in the nation as a whole. As a result, there are compelling reasons not to accommodate a national standard for perchlorate exposure.

- A new rule for perchlorate would be an expensive regulatory burden for drinking water systems in the vast majority of state municipalities that have no occurrence or exposure issues. The national compliance cost of setting a maximum contaminant level (MCL) of six micrograms per liter has been estimated at between \$76 million and \$140 million per year.
- Existing EPA regulations relate such a federal environmental action to the impact that the action would have on the nation's health as a whole. The lack of perchlorate occurrence in most of the nation's water systems falls far short of this requirement.
- Existing data have demonstrated that the focus of the perchlorate issue should be *iodine deficiency* more than perchlorate occurrence. Where there are significant potential effects from local perchlorate levels, treatment to correct iodine deficiency at these local levels should be a suitable, efficient, and cost-effective corrective action consistent with our understanding of thyroid function.
- Any focus on thyroid effects that does not address the presence of nitrate contamination in the environment in dishonest, and denies the sound science that is available on this topic. While the effect of nitrate on the thyroid is somewhat less than

that of perchlorate, this is more than compensated for by the fact that nitrate content in most environmental samples is orders of magnitude higher than perchlorate.

- Perchlorate is a naturally occurring environmental constituent, and as such requires a more reasoned approach to any consideration as an ultra-trace contaminant (part per billion levels).

Beyond matters of science lie issues relating to the political landscape that complicates this debate. There is an easy (and lucrative) target for the junk science crowd – the military and industrial partnership that drove the development of valuable perchlorate technology for solid fuel rocket engines, and the defense of that effort by the previous administration. Again, sound science is being hijacked in order to score political points. Everyone who is involved in the professional sciences stands to lose if this is allowed to happen.

John Long
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COMMENTS ON VENTILATION DESIGN

Dear Editor,

I just got my copy of the *J. Chem. Health Safe.* 2009, 16(5), 27, and read your article. I am baffled by the LOCs. Granted, you say they can be based on corporate exposure limits, OSHA PELs, ACGIH TLVs or other appropriate standards and guidelines, but who actually looks at all these standards and guidelines and sets the LOCs? And when (what year) were they set?

Also, in Table 2, ammonia's LOC notes that this value is an STEL. Can I assume then, that the other LOCs are 8-h TWAs?

I have a real problem with Table 2's LOCs such as 10 ppm TWA for benzene, a 3 ppm TWA for formaldehyde, and a 100 ppm TWA for methylene chloride. I would hate to think that people would set ventilation rates based on these LOCs. And as a person who has specified ventilation equip-

ment and set rates for over 30 art and theater buildings in which many of these same chemicals are used in shops and studios, and as a consultant that carries a \$2 million liability policy, I need to base my calculations on accepted standards.

So please provide details about the LOC standard-setting process.

Thanks.

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The Author Responds:

Dear Ms. Rossol,

Thank you for your time to read the article. First, I apologize for not including the most recent exposure limits for the materials listed in Tables 2 and 4. The table was extracted from a older reference to show the range of materials and hazards used in typical laboratories. I agree that only the most recent data should be used to decide how best to control occupational exposure. I highly recommend using the most recent information for OSHA permissible exposure limits (regulatory) or the ACGIH TLV Booklet (Recommended). Corporate limits are generally used where extra protection is desired or assigned to hazards developed in house that have limited data on toxicological effects from exposure. The term "level of concern" was used in this paper as a generic term to cover accepted exposure limits. In all cases, it is prudent to base the level of concern (LOC) on the lowest reported value.

Table 2 was included in the paper to simply indicate the range of exposure limits for materials that might be encountered during typical laboratory experiments. As such, Table 2 and sub-

sequent Tables 3 and 4 were not intended to provide guidance for selection of airflow or ACH requirements. The purpose of presenting the list of materials and generation rates was simply to enforce the point that it is not prudent to rely on dilution or specification of a single ACH to protect people working with a wide range of potentially hazardous materials in laboratories. The use of a single value for ACH is too simplistic and may lead to a false sense of safety particularly where hazards and generation rates

vary depending on the process. The overall purpose of this paper was to show that control of occupational exposure is best accomplished by capturing hazardous emissions at the source rather than relying on dilution. Use of the most recent PELs or TLVs in the tables would not have changed our purpose for writing the paper nor affected our final conclusions and recommendations.

Again, I really appreciate your review and comments about the paper. I hope this explanation is helpful. If

not, please feel free to call me at 919-319-4290.

Sincerely,
Tom

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