



SFIREG

State FIFRA Issues Research and Evaluation Group

March 30, 2022

Anita Pease
Director, Antimicrobials Division
Office of Pesticide Programs
Division Mail Code (7510P)
1200 Pennsylvania Ave. NW
Washington, D.C. 20460

Re: SFIREG Issue with the EPA Chlorine Gas PID and the requirement to make Chlorine Gas a restricted use pesticide

Dear Anita Pease,

The State FIFRA Issues Research and Evaluation Group (SFIREG) is a standing committee of the Association of American Pesticide Control Officials (AAPCO). SFIREG and the Joint Working Committees (JWC) of the Environmental Quality Issues (EQI) and Pesticide Operations and Management (POM) provide a platform for the states and EPA to resolve challenges for successful implementation of pesticide programs and policies. SFIREG and JWC members consist of state representatives from the EPA regions. The groups have a long history of working with EPA staff as coregulatory partners to implement FIFRA.

We are writing on behalf of SFIREG and the JWC to respectfully follow-up on conference calls our member leaders and scientists have had with the EPA Office of Pesticide Programs (OPP) on the Chlorine Gas Interim Decision (ID)¹. We have appreciated the opportunity to have productive discussions with OPP staff on the chlorine gas topic. Chlorine gas products are widely utilized by a variety of sectors across the country. Due to the serious nature of the chemistry and potential impacts of this product, the sale, transportation, and use of chlorine gas has been successfully regulated and managed for decades. After the review of the OPP Chlorine Gas ID and supporting documents and discussions with OPP staff, SFIREG has concerns about the requirement to make chlorine gas a restricted use pesticide (RUP). We respectfully request additional opportunities to engage with EPA on this decision. SFIREG has considerable concerns about the rationale for a RUP designation and the potential impacts that would have on

¹ The Chlorine Gas Interim Decision and other documents related to Chlorine Gas Registration Review were accessed in the Chlorine Gas Registration Review Docket: <https://www.regulations.gov/docket/EPA-HQ-OPP-2010-0242/document>

State Lead Agency (SLA) pesticide programs and chlorine gas users that would be impacted. As outlined in more detail below, the information we found in supporting documents for the OPP Chlorine Gas ID does not seem to match an RUP designation for chlorine gas uses.

General Comments and Concerns about Rationale

While reviewing the Chlorine Gas PID and ID, associated with Federal Register Notice EPA-HQ-OPP-2010-0242, along with several other supporting documents, our team questions the conclusion to restrict this product. We request that EPA reconsider the RUP designation. All uses of chlorine gas would become restricted use, except for use by public water systems, municipal water supplies and treatment plants, and sewage and wastewater treatment plants. The Chlorine Gas PID states that the reason is “Due to the high acute toxicity of compressed chlorine gas.”

While we acknowledge that the high acute toxicity of chlorine gas is well established, it seems that the Agency narrowly focused on just this aspect for RUP designation and not fully considered other aspects of chlorine gas assessments in deciding whether the registered uses of chlorine gas should be restricted to mitigate risks to human health and the environment.

The risk assessment information for chlorine gas as described and summarized in several supporting documents clearly indicate that chlorine gas is highly toxic to humans and non-target organisms. However, the assessments also clearly point out that exposure to chlorine gas is not likely due to it being used in closed loading and delivery systems, and due to its properties that result in short lifetimes as free chlorine gas in water and in the environment in general. With major sectors to be exempted from RUP designation, we request that EPA work to evaluate and describe more clearly what sectors would have the potential to impact aquatic systems and the environment.

Below is a selection of excerpts from chlorine gas registration review documents that highlight the low risk profile of the registered uses.

Human Health Risk:

Risk Summary and Characterization for Human Health Risks in *Chlorine Gas PID*, 2020, p.10:

“Though highly toxic, exposures to chlorine gas are not anticipated. Chlorine gas reacts readily with water to form aqueous chlorine, which then disproportionates rapidly (in the order of milliseconds) to form hypochlorous and hydrochloric acid; therefore, exposures to chlorine gas are not anticipated.”

“Additionally, chlorine gas is registered for use only in closed loading and delivery systems. Therefore, residential handler, residential post-application, occupational handler, and occupational post-application exposures are not anticipated, and risks are anticipated to be minimal for registered uses of chlorine gas. As a result, EPA did not select points of departure for chlorine gas nor did it conduct a quantitative risk assessment for the registered uses.”

Human Incidents and Epidemiology (p. 11):

“Based on a search conducted on March 4, 2020, there were 7 human health incidents reported from the use of chlorine gas products in the Office of Pesticide Programs (OPP) Incident Data System (IDS) database for the time period spanning from 2009-2020.” Of these 7 human incidents, 90% were rated as moderate or minor.

Human Health Risk in “*Chlorine Gas Human Health and Ecological Draft Risk Assessment (2018)*”:

Toxicity Points of Departure (p. 7):

“For the assessment of uses of chlorine gas and/or aqueous chlorine registered by the Agency, the Agency has determined that dietary (food) exposure to chlorine gas is not expected, as there is no expectation that residues above background levels will occur when used appropriately. Drinking water exposure to chlorine gas and/or aqueous chlorine is not expected to contribute to exceeding the maximum residue level of 4 mg/L set by the Agency’s Office of Water. “

“Occupational and post-application exposure to chlorine gas, including exposure of pool service operators and bystanders is not expected to be significant provided proper application methods (e.g., closed loading and delivery systems) are followed. Based on the lack of exposures from registered uses of chlorine gas, the Agency is not selecting points of departure for chlorine gas nor conducting a quantitative risk assessment for the registered uses.”

Residential and Occupational Exposure/Risk Characterization (p. 9):

“Because chlorine gas is metered into water through closed systems in manufacturing processes or from large stationary containers such as tank cars, tank trucks, and cylinders, the Agency believes that occupational and post-application exposure to chlorine gas, including exposure of pool service operators and bystanders is not significant provided proper application methods are followed. Therefore, a quantitative assessment is not warranted.”

Ecological Risk:

Risk Summary and Characterization in *Chlorine Gas PID, 2020*, p.13:

“Chlorine gas is very highly reactive and any potential for bioaccumulation or bioconcentration is not expected. Chlorine gas hydrolyzes rapidly in water and, depending on pH, forms hypochlorous acid, hypochlorite ions, and hydrochloric acid.

Chlorine is highly toxic to all forms of aquatic life. In the aquatic environment, the toxic action is largely due to the hypochlorous acid formed when chlorine gas reacts with water. Adverse effects of hypochlorous acid are due mainly to its corrosive action. Acute necrosis may occur. Fish gill structure may be damaged; gill necrosis can lead to respiratory problems and asphyxiation. The protective slime coating on fish may also be removed due to the corrosive action.

Chlorine dissipates quickly in the environment. Chlorine hydrolyzes rapidly to form hypochlorous compounds in water. In the air, chlorine reacts by photolysis to form hydrochloric

acid and hypochlorous acid which are removed from the air by precipitation. Movement of chlorine in the soil is not expected to be a concern due its high reactivity which leads to chlorine being quickly volatilized.

Due to the volatility and reactivity of chlorine gas in an aqueous solution, gaseous chlorine should not persist long enough in the environment to cause significant exposure to non-target organisms.”

Ecological and Environmental Fate Data Needs (p. 14):

“For the qualitative ecological risk assessment conducted for the DRA, existing data were sufficient to determine that chlorine gas is unlikely to adversely affect nontarget organisms based on the registered use patterns. The agency does not anticipate any further ecological fate and effects data needs for chlorine gas at this time.”

Ecological Incidents (p. 14):

“A search of the agency’s Incident Data System (IDS) found one incident report for chlorine gas which was a water treatment registered use that resulted in negatively affecting aquatic animals in Sonoma, California on May 12, 2000. No additional information was available. The database was checked on March 4, 2020 and has reports back to 1996.”

Ecological Risk in “*Chlorine Gas Human Health and Ecological draft risk assessment (2018)*”:

Major Uncertainties and Data Gaps (p. 14):

“For this qualitative risk assessment, the data was sufficient to surmise that chlorine gas would not adversely affect nontarget organisms based on the registered pesticidal uses outlined in this document. If a more comprehensive risk assessment is needed in the future, additional aquatic plant, chronic fish and invertebrate studies may be needed.”

The information outlined above address the fact that; chlorine gas products are used by skilled service operators of closed loading and delivery systems, applications of chlorine gas are already properly managed by applicators/operators, there are no incidents of operator health impacts, and there are no aquatic impact incidents. In addition, the information highlights that chlorine gas has a short environmental half-life in water, there are no documented issues in streams and rivers, there are no Clean Water Act TMDL issues with chlorine gas in water, and human health and ecological risk assessments don’t match up with the EPA’s conclusion to classify chlorine gas use as RUP.

We also have concerns about the impacts of chlorine gas RUP designation to SLA certification and training (C&T) programs. Existing C&T programs typically do not offer training that matches the needs for the unique use patterns and methods used for chlorine gas. The SLAs and partners throughout the nation would have a significant new burden and expense to create certification manuals, training materials and validated exams which would cover each of the uses of chlorine gas that may become restricted as a RUP. EPA has not clearly outlined who would be

regulated with the proposed RUP designation. The RUP designation of chlorine gas would be an additional burden to already strained C&T programs.

SFIREG and SLAs are focused on providing science-based information to the public, stakeholders, industry, and to EPA. The SFIREG JWC will be discussing the Chlorine Gas topic at the upcoming April 11-12, 2022 meeting. Our JWC co-chairs have invited EPA staff to participate in our Chlorine Gas topic discussion. Throughout the nation, the SLAs are working to register pesticides, train applicators, conduct enforcement and compliance assistance, and work to protect human health and the environment. We have considerable concerns about the complex and overly burdensome impacts to SLAs and the chlorine gas users in the many diverse use categories across the nation. We request the opportunity to have additional discussion with EPA and for EPA to reconsider the RUP designation. We look forward to working with EPA and providing helpful comments before a conclusion is made on the projected regulatory approach.

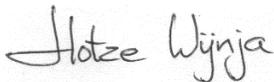
Thank you for considering our request, and we look forward to hearing back from you.

Sincerely,



Gary Bahr
SFIREG Chair

Science Liaison
Office of Director
Washington State Department of Agriculture



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