



Dow North America

2020 Dow Center
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Tom Morris, OC1120, Freeport
Alex Pollock, 2030
Joe Stearns, 2020
Don Townsend, 2020

re: ChemRisk Critique of the Greenpeace PVC Dioxin Factories Report

Attached is the Executive Summary from the ChemRisk critique of the Greenpeace report entitled *Dioxin Factories: A Study of the Creation and Discharge of Dioxins and Other Organochlorines from the Production of PVC*. ChemRisk was retained by the Vinyl Institute to evaluate the Greenpeace report.

The ChemRisk critique has been shared with key PVC trade publications under a cover letter from Edward Howard & Company. Edward Howard is the public relations firm used by the Vinyl Institute.

In addition, the critique will be shared with Canadian and USA regulatory agencies. In the USA the report may be transmitted through Keller & Heckman, council for the Vinyl Institute.

Please let me know if you have any questions or would like a copy of the complete ChemRisk report.

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DOW RESTRICTED INFORMATION

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EXECUTIVE SUMMARY

A critical analysis is presented of the Greenpeace report entitled *Dioxin Factories: A Study of the Creation and Discharge of Dioxins and Other Organochlorines from the Production of PVC*, a publication which targets the polyvinyl chloride (PVC) manufacturing industry as a major source of environmental levels of organochlorine compounds. The Greenpeace assessment contains numerous factual errors and unsupported allegations concerning the following key subject areas:

- EDC/VCM/PVC Production Processes
- Dioxins and Organochlorines as Byproducts of EDC/VCM/PVC Production
- Sources of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans (PCDD/PCDFs) to the Environment
- Toxicity Issues
- Human Exposure Issues

In Greenpeace's cursory consideration of the EDC/VCM/PVC production processes, they concluded that the industry has become "the sink for surplus chlorine," while the widespread uses and benefits of PVC are wholly overlooked. Greenpeace's assumption that production processes at all EDC/VCM/PVC facilities are comparable is the basis for their generalization from a single facility to all facilities worldwide, without regard for differences in regulations, facility designs, processes, or operating practices.

Greenpeace also presents numerous unfounded conclusions pertaining to discharge rates of dioxins and other organochlorines, each of which is critically evaluated and determined to be without scientific basis. Additionally, in Greenpeace's effort to lay blame on the PVC industry, other sources of PCDD/PCDF to the environment are completely overlooked. The inherent bias of the report is also evident through several misleading statements and misinterpretations of the cited literature. Five examples of clear misinterpretations of the literature are presented.

Furthermore, the scientific basis for Greenpeace's assumptions regarding the toxicity of dioxin and risks associated with potential exposures to dioxin is extremely limited and tenuous. The sources

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referenced by Greenpeace as confirming dioxin's carcinogenicity in humans do not support Greenpeace's conclusions. Similarly, Greenpeace's assertions that dibenzofurans affect the growth and mental development of children exposed *in utero* and that dioxin causes noncancer effects other than chloracne in humans were also examined and found to be equivocal. Other erroneous conclusions refuted in this analysis include: results of an incorrect interpretation of dose response, misinterpretation of carcinogenic versus noncarcinogenic effects, and the inappropriate estimation of the dioxin dose received by the general population.

In summary, many of Greenpeace's conclusions pertaining to EDC/VCM/PVC production, dioxins and organochlorines as byproducts of EDC/VCM/PVC production, source contribution, toxicity, and exposure are unsupported by the scientific literature. Interestingly, many of the sources referenced by Greenpeace do not support their assertions. An analysis is presented which examines the scientific basis for such conclusions and offers scientific interpretations of the available data and literature.