



# Safer High Precision Cleaning Solvents



## THE SAFER, POWERFUL REPLACEMENT FOR HIGHLY TOXIC SOLVENT CLEANERS

PWR-4™ Cleaners are ideal where a safer, nonflammable, and cost effective cleaner is required. This innovative solvent is much safer than the four most common industrial solvents: TCE, nPB, Perc and Methylene Chloride and quickly cleans the most difficult greases and oils from electronics, relays, and motors.

PWR-4 solvents are engineered to remain stable and effective over thousands of cycles in vapor degreasing equipment.

Removes oils, greases, silicones, refrigerant oils, fluxes, adhesives and other common industrial contaminants. Used for aerospace applications, aviation MRO, cleaning medical instruments, implants and other devices including orthopedic implants, and monitoring devices.



	20 oz aerosol	1 gal	5 gal	54 gal
Degreaser	3400-20S	3400-G	3400-5G	3400-54G
Flux Remover	-	3401-G	3401-5G	3401-54G
Solvent 3410	-	3410-G	3410-5G	3410-54G

Techspray's TechLab is available to help qualify new cleaning processes, evaluate current processes, or troubleshoot contamination issues. Contact Techspray at 678-819-1408 or info@itwccce.com for free TechLab qualification testing.



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## Understand The Risks of Highly Toxic Solvents

### nPB

- CAS# 106-94-5
- aka n-Propyl bromide  
1-Bromopropane  
Bromopropane  
Propyl bromide
- Toxicity / TLV: 0.1 ppm
- Neurological effects,  
multiple reproductive  
effects (male & female)
- EPA aerosol ban proposed
- Restricted in California

### TCE

- CAS# 79-01-6
- aka Trichloroethylene  
Acetylene trichloride  
Ethynyl trichloride  
Ethylene Trichloride
- Toxicity / TLV: 10 ppm
- Liver, kidney or lung  
cancer
- Restricted in California

### Perc

- CAS# 127-18-4
- aka Perchloroethylene  
Ethylene tetrachloride  
Tetrachloroethylene  
Carbon bichloride  
Carbon dichloride
- Toxicity / TLV: 25 ppm
- Liver damage, altered  
renal function
- Restricted in California

### Methylene Chloride

- CAS# 75-09-2
- aka Dichloromethane,  
methylene bichloride
- Toxicity / TLV: 25 ppm
- Liver, kidney, lung,  
pancreas and lung cancer
- Restricted in California

## EPA Tightens Restrictions on nPB, TCE, Perc & Methylene Chloride Due to Health Risks from Toxicity

by

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n-Propyl Bromide (nPB), Trichloroethylene (TCE), Perchloroethylene (Perc), and Methylene Chloride are four examples of harmful chemicals that are commonly used in aerosol and bulk cleaners in industrial applications. These chemicals are commonly used as cleaning solvents because they are non-flammable, have high solvency, and are relatively inexpensive.

The lack of toxicity knowledge and control can lead to employee ill health, downtime, and potential liability, no matter what the legal standing of a particular chemical. The onus is on the organizations using solvents to select products carefully, and equip the users to safely handle the chemicals.

### n-Propyl Bromide (nPB)

In the report “Nontechnical Summary of the Risk Evaluation for 1-Bromopropane (n-Propyl Bromide)”<sup>1</sup>, the US Environmental Protection Agency (EPA) determined that the solvent “presents an unreasonable risk for 16 conditions of use.” Some of those conditions of use include industrial and



consumer use for cleaning and degreasing, vapor degreasers – open-top and inline, cold cleaners, aerosol spray degreaser/cleaner, and automotive degreasers -- i.e. for engines, brakes.

This is the most direct, unambiguous statement against nPB from any national US regulatory agency to date, suggesting the sunset of its availability for degreasing is quickly approaching.

### Trichloroethylene (TCE)

In the “Final Risk Evaluation for Trichloroethylene”<sup>2</sup> published January 2023, the EPA released its final risk determination that “TCE presents an unreasonable risk of injury to health under its conditions of use”.

EPA assessed the impact of TCE on workers, occupational non-users, consumers, and bystanders. It has raised the concern that OSHA’s Permissible Exposure Limits are “outdated and inadequate”, so PPE and engineering controls may not be enough.



## Perchloroethylene (Perc)

In “Perchloroethylene Draft Revised Unreasonable Risk Determination for Public Comment”, the EPA concluded that it “presents an unreasonable risk for sixty(60) conditions of use”<sup>3</sup>, including domestic manufacture or import, industrial and commercial use for vapor degreasing, and processing into cleaning and degreasing products.

More recently, the agency released a regulatory agenda, which outlines plans to propose a final risk management rule for PERC by August 2024.

## Methylene Chloride

In March 2019, the EPA issued a final rule that effectively banned the consumer sales of methylene chloride-based paint strippers for use in residential settings. The agency found that numerous deaths had occurred due to exposure to these products, often in poorly ventilated areas.<sup>4</sup>

In May 2023, the EPA proposed workplace protection under the Toxic Substances Control Act (TSCA) which includes prohibition of manufacturing, processing and distribution for all consumer uses, ban on most industrial and commercial uses, strict workplace protections and reporting.<sup>5</sup>

## Hazardous Air Pollutants (HAPs)

Hazardous Air Pollutants (HAPs) are well-known chemicals that can induce cancer, as well as other major health issues such as birth defects or reproductive problems. To reduce emissions, EPA established a national monitoring strategy, through The Clean Air Act (CAA), to regulate toxic air pollutants, and mitigate exposure to health-damaging hazards.

One of the main tools The United States Environmental Protection Agency (EPA) employs to guarantee that regulated populations comply with environmental laws is compliance monitoring. It includes any regulatory agency actions taken to check if a facility (or collection of facilities, such as locations connected geographically, by industry, or by corporate structure) follows the policy in question.

Infractions may also be found through the Environmental Violation Reports that the Agency receives from the general public. Any of these activities that uncover violations may result in civil or criminal enforcement<sup>6</sup>.

## Tech Support with Techspray

Techspray’s TechLab offers state-of-the-art cleaning, coating and analytical services to help customers qualify new products and optimize their processes. Cleaning equipment includes inline, batch, ultrasonic, and vapor degreasing systems. This equipment allows us to better duplicate your production environment for process optimization and troubleshooting.

Contact Techspray at **678-819-1408** or **info@itwce.com** for free TechLab qualification testing. We are available to help qualify new cleaning processes, evaluate current processes, or troubleshoot contamination issues.



*About the author: Dr. Saroj Yadav is Marketing Director for Techspray, and previously Director of Product Technology. She has a PhD in Organic Chemistry from Louisiana State University, and has been published in several chemistry*

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### References

- <sup>1</sup> EPA, “Nontechnical Summary of the Risk Evaluation for 1-Bromopropane (n-Propyl Bromide)”, Aug. 2020 - [https://www.epa.gov/sites/production/files/2020-08/documents/1-bromopropane\\_final\\_risk\\_evaluation\\_nontech\\_summary\\_1bp\\_73020\\_v3.pdf](https://www.epa.gov/sites/production/files/2020-08/documents/1-bromopropane_final_risk_evaluation_nontech_summary_1bp_73020_v3.pdf) (accessed 8/25/23)
- <sup>2</sup> EPA, “Final Risk Evaluation for Trichloroethylene”, rev. June 2023, <https://www.epa.gov/compliance/how-we-monitor-compliance#inspection> (accessed: 10/10/22).
- <sup>3</sup> EPA, “Perchloroethylene - Draft for public comment”, June 2022 - [https://www.epa.gov/system/files/documents/2022-06/PCE\\_127-18-4\\_Risk%20Determination\\_06-24-2022-revised-clean.pdf](https://www.epa.gov/system/files/documents/2022-06/PCE_127-18-4_Risk%20Determination_06-24-2022-revised-clean.pdf) (accessed 7/10/22)
- <sup>4</sup> EPA, “Final Rule on Regulation of Methylene Chloride in Paint and Coating Removal for Consumer Use”, rev. June 2023, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/final-rule-regulation-methylene-chloride-paint-and> (accessed: 8/29/23)
- <sup>5</sup> EPA, “Risk Management for Methylene Chloride”, rev. June 2023, <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/risk-management-methylene-chloride#> (accessed 8/29/23)
- <sup>6</sup> EPA, “How We Monitor Compliance”, rev. June 2023, <https://www.epa.gov/compliance/how-we-monitor-compliance#inspection> (accessed: 8/25/23).

# Highly Toxic Products To Avoid...



## nPB PRODUCTS

### CRC

Cable Clean  
Cable Clean RD  
Electronic Degreaser

### Ecolink

Hypersolve

### Enviro Tech

Ensolv 5408 – Aerospace Grade  
Ensolv – Vapor Degreasing

Ensolv Ionic – Electronics Grade  
Tulstar n-Propyl Bromide

### Parts Cleaning Technologies

Techtride 5408-02

Entron Aero – Boeing 5408 Approved

Entron – Precision Cleaning

Gentech – Metal Finishing

### Vantage

Lenium GS

### Other Chemical Supply

#### Companies:

Tech Chem

Tulstar

Unistar

RX Chemicals

## TCE PRODUCTS

### CRC

Cable Clean

### LPS

HDX Heavy-Duty Degreaser

### Parts Cleaning Technologies

Techtride TCE

### Sprayon

EL2001 Electronic Contact Cleaner & Protectant

EL848 Flash Free Electronic Degreaser

### Zep

Aerosolve II Chlorinated All Purpose Degreaser

Power Solv II

### Other Chemical Supply

#### Companies:

Unistar

RX Chemicals

## PERC PRODUCTS

### CRC

Cable Clean RD  
Heavy Duty Degreaser  
Heavy Duty Parts Cleaner  
LECTRA CLEAN 3000 Electronic Parts Cleaner  
LECTRA-MOTIVE Electronic Parts Cleaner

Quick Clean Safety Solvent and Degreaser

### Parts Cleaning Technologies

Techtride Perk

### Sprayon

EL703 Electronic Motor Degreaser

### Other Chemical Supply

#### Companies:

Unistar

RX Chemicals

## METHYLENE CHLORIDE PRODUCTS

### McGean USA

Cee-Bee A-215  
Cee-Bee A292NC-M  
Cee-Bee A-458  
Cee-Bee R-256

### Other Chemical Supply Companies:

GJ Chemical

ProChem, Inc.

RX Chemicals

TriInternational, Inc.

Univar



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