Safety Data Sheet

according to WHMIS 2023 and HCS 2024

Date of issue 04/04/2025 Version number 5.02 Revision: 04/04/2025

1 Identification

· **Product identifier**

· **Trade name: 841AR**

· **Other Means of Identification:** Super Shield™ Nickel Conductive Paint

· **Related Part Number:**
841AR-Liquid, 841AR-15ML, 841AR-55ML, 841AR-150ML, 841AR-900ML, 841AR-3.78L

· **Application of the substance / the mixture** Electrically conductive coating and EMI/RFI shield.

· **Uses advised against** Not available

· **Details of the supplier of the safety data sheet**

·

Manufacturer/Supplier:
MG Chemicals (Head Office)
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA
+(1) 800-340-0772
+(1) 905-331-1396
info@mgchemicals.com

· **Information department:** sds@mgchemicals.com

· **Emergency telephone number:**

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA-Call Verisk 3E at +1-866-519-4752 or +1-760-476-3962 (Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA-Call CANUTEC collect at +1-613-996-6666 or *666 on cellular phones

* 2 Hazard identification

· **Classification of the substance or mixture**

Flammable liquids – Category 2	H225 Highly flammable liquid and vapour.
Eye damage/irritation – Category 2A	H319 Causes serious eye irritation.
Sensitization - skin – Category 1	H317 May cause an allergic skin reaction.
Carcinogenicity – Category 2	H351 Suspected of causing cancer. Route of exposure: Inhalation.
Specific target organ toxicity (repeated exposure) – Category 1	H372 Causes damage to the lung through prolonged or repeated exposure. Route of exposure: Inhalation.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

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· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
nickel powder (particle diameter < 1 mm)
acetone
heptan-2-one
2-methoxy-1-methylethyl acetate

· **Hazard statements**
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer. Route of exposure: Inhalation.
H372 Causes damage to the lung through prolonged or repeated exposure. Route of exposure: Inhalation.
H412 Harmful to aquatic life with long lasting effects.

· **Precautionary statements**

P102	Keep out of reach of children.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P243	Take action to prevent static discharges.
P260	Do not breathe mist/vapors/spray.
P264	Wash thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves, protective clothing, and eye protection.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice.
P312	Call a POISON CENTER/doctor if you feel unwell.
P333+P313	If skin irritation or rash occurs: Get medical advice.
P337+P313	If eye irritation persists: Get medical advice.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use CO2, powder or water spray to extinguish.
P403+P235	Store in a well-ventilated place. Keep cool.

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P405 Store locked up.
P501 Dispose of contents and container in accordance with local, regional, and national regulations.

· **Other hazards** Repeated exposure may cause skin dryness or cracking.

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
7440-02-0	nickel powder (particle diameter < 1 mm)	48% w/w
616-38-6	dimethyl carbonate	16% w/w
67-64-1	acetone	13% w/w
110-43-0	heptan-2-one	10% w/w
108-65-6	2-methoxy-1-methylethyl acetate	2% w/w

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· **After inhalation:**
Remove person to fresh air and keep comfortable for breathing.
If feeling unwell: Call a POISON CENTRE or doctor.
If exposed or concerned: Get medical advice/attention.
· **After skin contact:**
If exposed or concerned: Get medical advice or attention.
Take off immediately all contaminated clothing. Wash skin with plenty of water.
If skin irritation or rash occurs: Get medical advice or attention.
Wash contaminated clothing before reuse.
· **After eye contact:**
Rinse cautiously with water for 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice or attention.
· **After swallowing:**
Rinse mouth.
Do NOT induce vomiting.
If symptoms persist consult doctor.
If exposed or concerned: Get medical advice or attention.

· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

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· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet

· **Special hazards arising from the substance or mixture**
The flu-like symptoms of metal fever may be delayed, occurring 4 to 12 hours after exposure.
During heating or in case of fire poisonous gases are produced.
Vapors are heavier than air. Vapors may travel to sources of ignition near the ground. They can cause flash fire or ignite explosively.
Prevent fire-fighting wash from entering waterway or sewer system.
Inhalation of metal fumes may cause metal fever and irritate the respiratory tract.
May produce very toxic nickel carbonyl gas in the presence of carbon monoxide in a reducing atmosphere.
· **Hazardous combustion products:**
nickel oxide fumes, tetracarbonylenickel
Carbon Oxides (COx)
toxic metal fumes

· **Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Remove or keep away all sources of extreme heat or open flames.
Do not breathe the mist/vapors/spray/fumes.

· **Environmental precautions:**
Avoid release to the environment.
Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**
Dispose contaminated material as waste according to section 13.
Ensure adequate ventilation.
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Collect liquid in a sealable, chemical-resistant container.
Wash residue with a paper towel and place dirty towels in container.
Use soap and water to remove the last traces of residue.

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· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**
Do not eat, drink, or smoke when using this product.
Ensure good ventilation/exhaustion at the workplace.
Wear protective gloves and eye protection.
Wash hands and exposed skin thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Contaminated work clothing should not be allowed out of the workplace.
Obtain, read and follow all safety instructions before use.
Do not breathe mist, vapours, spray.

· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.
Use explosion-proof apparatus / fittings and spark-proof tools.
Ground and bond container and receiving equipment.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Keep in a dry and clean area, away from incompatible substances

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
Store locked up.

· **Specific end use(s)** See section 1.2

8 Exposure controls/ Personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
7440-02-0 nickel powder (particle diameter < 1 mm)	
EL (Canada)	TWA: 0.05 mg/m³ ACGIH A1, IARC 2B
EV (Canada)	TWA: 1 mg/m³ Inhalable fraction

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PEL (USA)	TWA: 1 mg/m³
REL (USA)	TWA: 0.015 mg/m³ as Ni; See Pocket Guide App. A
TLV (USA)	TWA: 1.5* mg/m³ elemental, * inhalable fraction, A5, BEI
67-64-1 acetone	
EL (Canada)	STEL: 500 ppm TWA: 250 ppm
EV (Canada)	STEL: 750 ppm TWA: 500 ppm
PEL (USA)	TWA: 2400 mg/m³, 1000 ppm
REL (USA)	TWA: 590 mg/m³, 250 ppm
TLV (USA)	STEL: 1187 mg/m³, 500 ppm TWA: 594 mg/m³, 250 ppm A4, BEI
110-43-0 heptan-2-one	
EL (Canada)	TWA: 50 ppm
EV (Canada)	TWA: 115 mg/m³, 25 ppm
PEL (USA)	TWA: 465 mg/m³, 100 ppm
REL (USA)	TWA: 465 mg/m³, 100 ppm
TLV (USA)	TWA: 50 ppm
108-65-6 2-methoxy-1-methylethyl acetate	
EL (Canada)	STEL: 75 ppm TWA: 50 ppm
EV (Canada)	TWA: 270 mg/m³, 50 ppm
WEEL (USA)	TWA: 50 ppm

· **Ingredients with biological limit values:**

7440-02-0 nickel powder (particle diameter < 1 mm)	
BEI (USA)	5 µg/L Medium: urine Time: post-shift at end of workweek Parameter: Nickel (background) 30 µg/L Medium: urine Time: post-shift at end of workweek Parameter: Nickel (background)
67-64-1 acetone	
BEI (USA)	25 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)

· **Additional information:**
The lists that were valid during the creation were used as basis.

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Refer to the national or regional occupational exposure limit regulation for abbreviations and acronyms.

· **Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

· **Personal protective equipment:**

· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.

· **Breathing equipment:**
Advice should be sought from respiratory protection specialists.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

· **Protection of hands:**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Protective gloves: EN374

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**

Safety glasses or tightly sealed goggles: EN 166

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Physical state**	Liquid
· **Form:**	Viscous

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· **Color:**	Dark grey
· **Odor:**	Acetone-like
· **Odor threshold:**	Not determined.
· **Melting point/Melting range:**	Undetermined.
· **Boiling point/Boiling range:**	56 °C (132.8 °F)
· **Flammability:**	Highly flammable.
· **Explosion limits:**	
· **Lower:**	2 Vol %
· **Upper:**	13 Vol %
· **Flash point:**	-17 °C (1.4 °F)
· **Auto igniting:**	315 °C (599 °F)
· **Decomposition temperature:**	Not determined.
· **pH-value:**	Not determined.
· **Viscosity:**	
· **Kinematic at 40 °C (104 °F):**	1,460 mm²/s
· **Dynamic:**	Not determined.
· **Solubility in / Miscibility with**	
· **Water:**	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	110 hPa (82.5 mm Hg)
· **Vapor pressure at 50 °C (122 °F):**	800 hPa (600 mm Hg)
· **Relative density at 25 °C (77 °F):**	1.7
· **Vapor density (air=1):**	≥2 (Air = 1)
· **Particle characteristics**	Not applicable.

· **Other information**

· **Important information on protection of health and environment, and on safety.**

· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Solvent content:**	
· **Organic solvents:**	25.00 %
· **Solids content:**	11.0 %
· **Evaporation rate**	Not determined.

10 Stability and reactivity

· **Reactivity**
The nickel can react vigorously with acids and liberate hydrogen, which can form an explosive mixture in air. Nickel may react with carbon monoxide in a reducing atmosphere to form a very toxic nickel carbonyl gas.

· **Chemical stability** Chemically stable at normal temperatures and pressures.

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

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· **Conditions to avoid** Avoid open flames, excessive heat, sparks, ignition sources, and incompatible substances.

· **Incompatible materials:**
Oxidizing agents
Strong acids
acid anydrides

· **Hazardous decomposition products:**
No dangerous decomposition products known.
Hazardous combustion products: see section 5.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	16,700 mg/kg (rat)
Inhalative	LC50/4 h	>167 mg/kg (rabbit)

616-38-6 dimethyl carbonate		
Oral	LD50	13,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)
67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	>7,426 mg/kg (rabbit)
Inhalative	LC50/ 3 h	132 mg/L (rat)
110-43-0 heptan-2-one		
Oral	LD50	1,670 mg/kg (rat)
Dermal	LD50	12,600 µL/kg (rabbit)
Inhalative	LC50/4 h	>16.7 mg/kg (rabbit)
108-65-6 2-methoxy-1-methylethyl acetate		
Oral	LD50	8,532 mg/kg (rat)
Dermal	LD/50	5 g/kg (rabbit)
Inhalative	LC50/4 h	35.7 mg/L (rat)

· **Primary irritant effect:**
· **on the eye:** Irritating effect.
· **Sensitization:** Sensitization possible through skin contact.

· **Summary of effects and symptoms by route of exposure**
· **Eyes:**
redness
redness, serious irritation

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· **Skin:**
redness
dry skin
rash, allergic contact dermatitis
· **Inhalation:**
cough
nausea
sore throat
weakness
headache
unconsciousness
dizziness or drowsiness
narcotic effects
· **Swallowed:**
sore throat
irritation
pain
nausea
abdominal pain
diarrhea

· **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged or repeated exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.
Chronic inhalation exposure to nickel dust, spray, or mist may damage lungs.

· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.

· NTP (National Toxicology Program)
None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· Aquatic toxicity:	
7440-02-0 nickel powder (particle diameter < 1 mm)	
EC50/ 72 h (static)	81.5–148 mg/L (algae)
LC50 96h	15.3 mg/L (trout) Contains nickel of less than a 1 mm but more than 100 nm (larger than nanoparticles), which release ionic nickel levels that are harmful to the environment. While massive nickel is insoluble in water, its powder is considered sufficiently soluble to give rise to an ecological hazard by EU regulators. The classification that follows takes into account to chronic aqueous toxicity of category 3 assignment of the EU.

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LC50/ 48 h	0.074 mg/L (water flea)
67-64-1 acetone	
EC50/ 48 h	13,500 mg/L (daphnia)
LC50 96h	5,540 mg/L (trout)
110-43-0 heptan-2-one	
EC50/ 48 h	>100 mg/L (daphnia)
LC50 96h	131 mg/L (minnow)

· **Persistence and degradability** No further relevant information available.

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **Other adverse effects**
· **Remark:** Harmful to fish

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** This material and its container must be disposed of as hazardous waste.

· **Uncleaned packagings:**
· **Recommendation:**
Containers may still present a chemical hazard/ danger when empty.
Dispose of contents in accordance with all local, regional, national, and international regulations.
Where possible retain label warnings and SDS and observe all notices pertaining to the product.

14 Transport information

· **UN-Number**	
· **DOT/TDG, IMDG, IATA**	UN1263
· **UN proper shipping name**	
· **DOT/TDG, IATA**	Paint
· **IMDG**	PAINT

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· **Transport hazard class(es)**

· **DOT/TDG (Transport dangerous goods):**

· **Class** 3 Flammable liquids
· **Label** 3

· **IMDG, IATA**

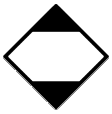
· **Class** 3 Flammable liquids
· **Label** 3

· **Packing group**
· **DOT/TDG, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**



Limited Quantity

841AR-15ML, 841AR-55ML, 841AR-150ML, 841AR-900ML, 841AR-3.78L

· **DOT/TDG**
· **Quantity limitations** On passenger aircraft/rail: 5 L
On cargo aircraft only: 60 L

· **IMDG**
· **Limited quantities (LQ)** 5L
· **Excepted quantities (EQ)** Code: E2
Maximum net quantity per inner packaging: 30 ml
Maximum net quantity per outer packaging: 500 ml

· **Special precautions for user** Not applicable.
· **Hazard identification number (Kemler code):** 33
· **EMS Number:** F-E,S-E
· **Stowage Category** B

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· **UN "Model Regulation":**	UN 1263 PAINT, 3, II

* 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **OSHA Hazard Communication Standard (29 CFR Part 1900)**
The safety data sheet and label comply with HCS 2024.

· **Hazardous Products Act (R.S.C., 1985, c. H-3)**
The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2023.

· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**
None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**		
616-38-6	dimethyl carbonate	ACTIVE
67-64-1	acetone	ACTIVE
110-43-0	heptan-2-one	ACTIVE
108-65-6	2-methoxy-1-methylethyl acetate	ACTIVE

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**	
7440-02-0	nickel powder (particle diameter < 1 mm)

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **TLV (Threshold Limit Value)**		
67-64-1	acetone	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**	
616-38-6	dimethyl carbonate
67-64-1	acetone
110-43-0	heptan-2-one
108-65-6	2-methoxy-1-methylethyl acetate

· **Canadian Non-Domestic Substances List (NDSL)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**	
67-64-1	acetone
110-43-0	heptan-2-one

· **HMIS-ratings (scale 0 - 4)**
Health = * 2
Fire = 3
Reactivity = 0

· **Europe**

· **RoHS (Restriction of Hazardous Substances Directive)**
This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

· **WEEE (Waste Electrical and Electronic Equipment Directive)**
This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Regulatory department
· **Contact:** sds@mgchemicals.com
· **Version number of previous version:** 5.01
· **Date of preparation** 04/04/2025
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative

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NIOSH: National Institute for Occupational Safety
· *** Data compared to the previous version altered.**