

# trans-1,2-Dichloroethylene (t-DCE) in Air

## About t-DCE

t-DCE is a highly flammable, clear liquid that evaporates easily. It is one of a large chemical class called volatile organic compounds or VOCs. t-DCE is a cleaning and degreasing solvent, as well as a propellant and blowing agent in many commercial and industrial processes. t-DCE is a principal component in some commercially available degreasers that may be alternatives to trichloroethylene in industrial or manufacturing uses.

## How Can You Be Exposed to t-DCE?

t-DCE can be released into the air in various ways. People may breath it by:

- Working in a facility that uses t-DCE
- Living or working near facilities that release t-DCE into the air
- Using products that contain t-DCE

## Potential Health Concerns from Breathing t-DCE

Most exposures to airborne t-DCE are in low amounts and are not likely to affect human health. People are more likely to experience health effects from breathing t-DCE if they are exposed to high levels of t-DCE over a long time. Many factors, such as your age, body size, lifestyle, and overall health status may also influence any effect t-DCE could have on your health.

Currently, data from human studies of inhaled t-DCE are limited. Available data includes effects resulting from exposure to very high levels of t-DCE in air. Data from study animals that inhaled t-DCE are also limited. Effects including liver changes, decreased white blood cell counts, and decreases in certain types of red blood cells were reported in studies of animals that breathed high levels of t-DCE.

More data exists for study animals given oral exposure to t-DCE, compared to inhalation studies. Effects to immune functions and increased liver and kidney weights were observed.

## MDH 2020 t-DCE Risk Assessment Advice (RAA)

The Minnesota Department of Health (MDH) developed RAA for subchronic and chronic exposures durations (see table below and [MDH's Air Guidance Values](#) webpage). The RAA values represent an amount of t-DCE in air that is likely to pose little or no risk to human health. They are protective for the general public, including sensitive subpopulations (elderly, children, people with weakened immune systems, a pregnant women).

At this time, only subchronic and chronic values could be determined from available data. The chronic RAA of 20 µg/m<sup>3</sup> is protective for all people for exposures lasting a lifetime. The subchronic RAA of 200 µg/m<sup>3</sup> is protective for all people for exposure lasting more than 30 days up to 10 percent of a lifespan or

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approximately 8 years. MDH cannot develop acute, short-term, or cancer guidance at this time because of the lack of studies available with sufficient animal or human data.

Breathing an amount of t-DCE that is above the RAA does not mean health effects will occur; however, the risk for health effects increases as the level of exposure increases. When RAA is exceeded, MDH recommends taking steps to reduce or avoid exposures.

Duration	t-DCE RAA	Description
<b>Acute (up to 24 hours)</b>	Not Developed	
<b>Short-term (up to 30 days)</b>	Not Developed	
<b>Subchronic (30 days – approximately 8 years)</b>	200 µg/m <sup>3</sup>	Protective against certain immune effects for all people
<b>Chronic (lifetime)</b>	20 µg/m <sup>3</sup>	Protective against certain immune effects for all people
<b>Cancer (lifetime)</b>	Not Developed	

[Air Guidance Values](https://www.health.state.mn.us/communities/environment/risk/guidance/air/table.html)

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Released: May 2020