

# Risks Assessments

The risks of chemicals are depended on the hazards and the amount of exposure.



## Risk Management :

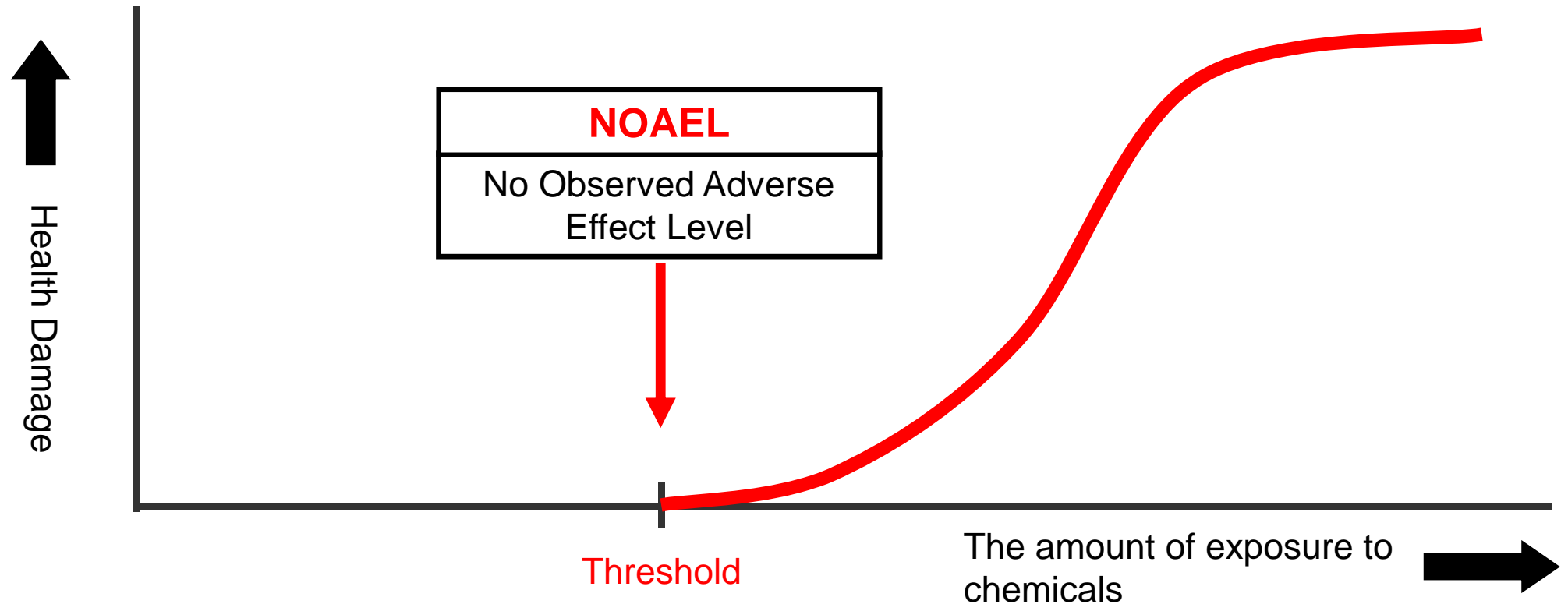
Judging whether chemicals impact human health.

Developing measures to reduce health risk.

Reducing the risks.

# NOAEL

The risk assessments of the chemicals are obtained from animal experiments, the “No observed adverse effect level” (NOAEL) is defined as the amount of exposure that is achieved by gradually reducing exposure.





# ADI

Acceptable Daily Intake

# ADI

## ADI (Accoptable Daily Intake)

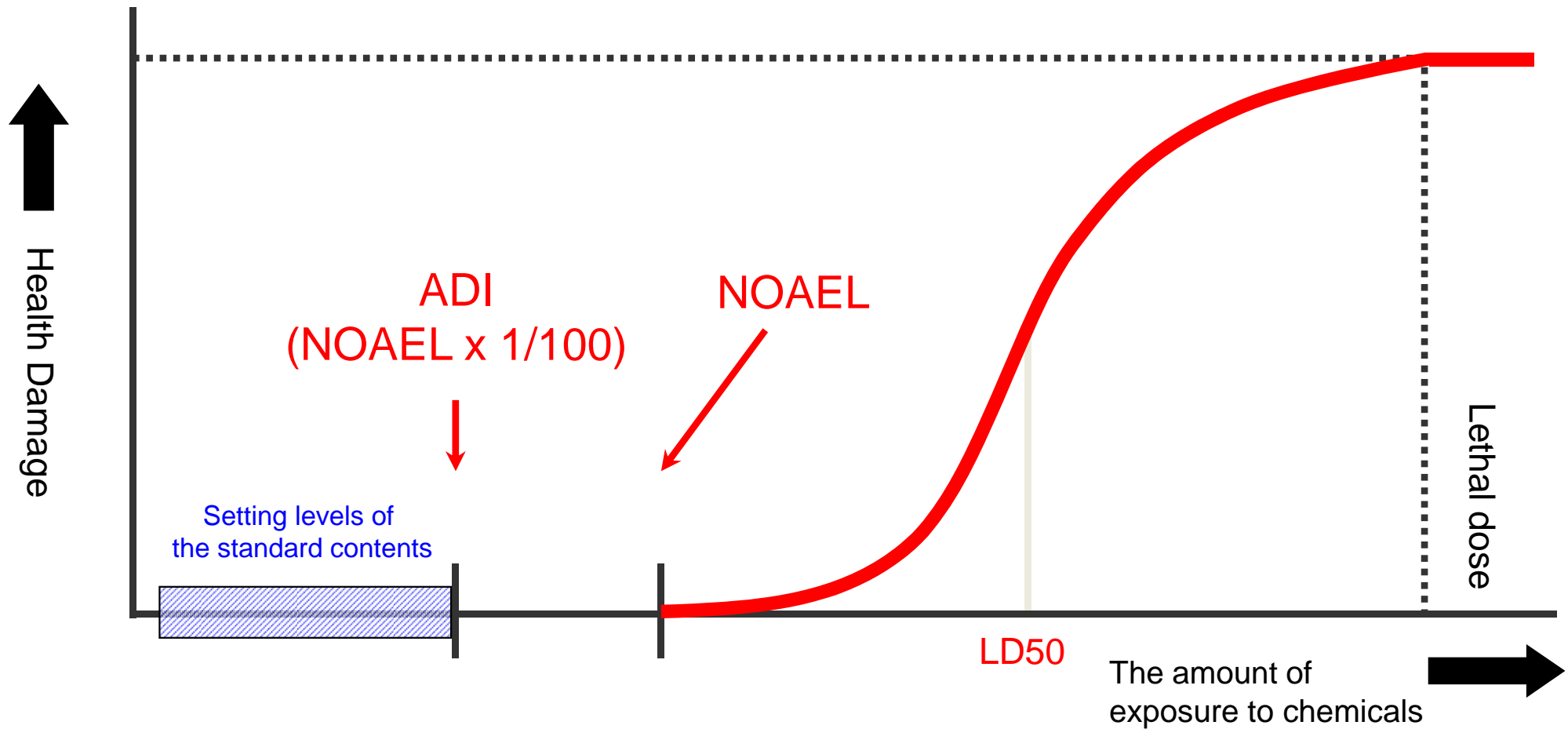
The daily intake amount of artificially added chemical substances, which is considered to have no adverse effects on health even if consumed daily throughout one's life.

NOAEL is divided by a safety factor (conventionally 100) to account for the differences between animals and human, and sensitivity between humans, such as gender- and age- differences.

Usually expressed in “mg/kg (body weight)/day.”

- (1) Food additives (Noodle-improving agents, thickening-stabilization agents, emulsifying agents, antioxidants, etc.)
- (2) Agricultural Chemicals
- (3) Veterinary Drugs
- (4) Others

# Health Damage and the Amount of Exposure (ADI)



ADI : Acceptable Daily Intake  
NOAEL : No Observed Adverse Effect Level  
LD50 : Lethal Dose 50



# TDI

Tolerable Daily Intake

# TDI

## TDI (Tolerable Daily Intake)

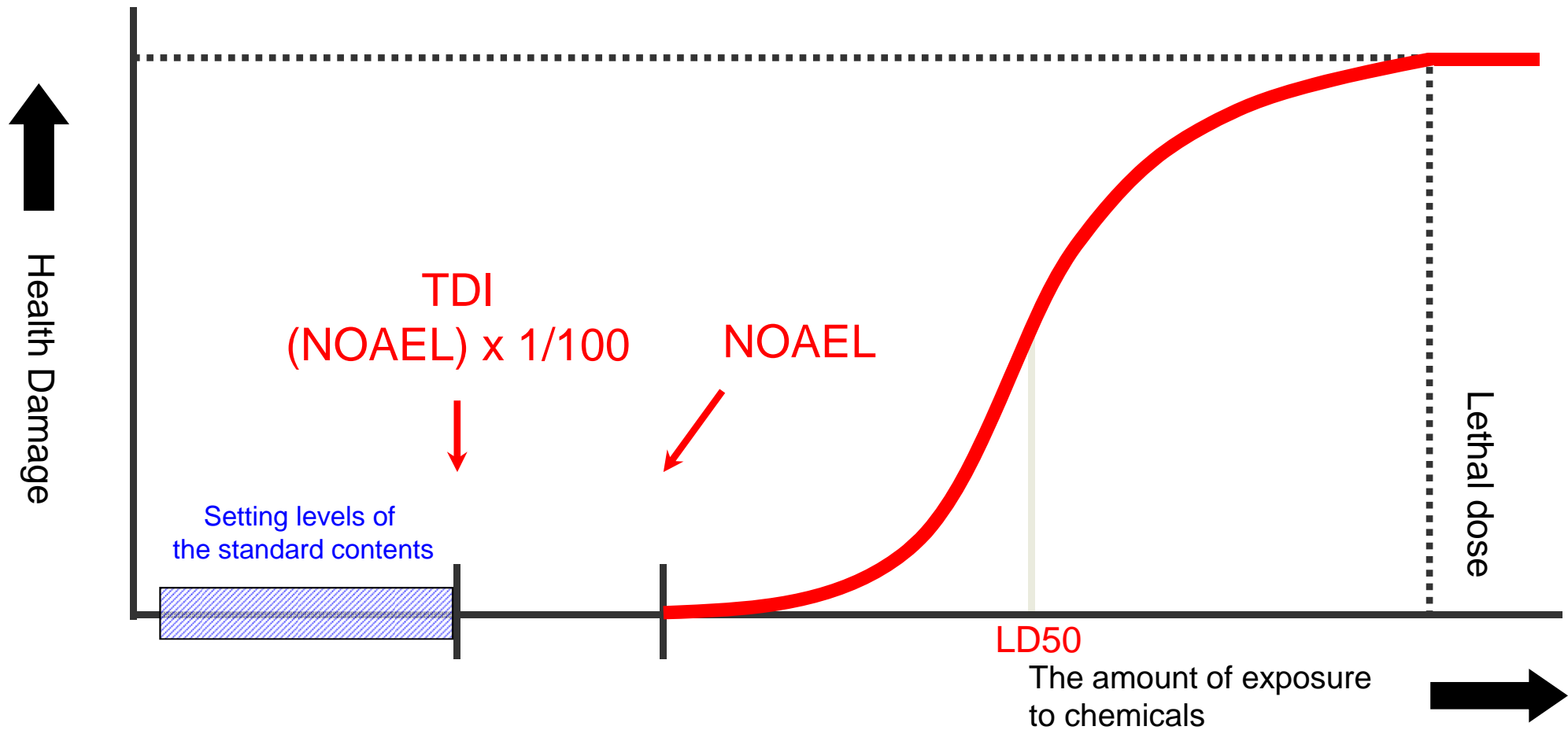
The permissible intake amount of **substances unintentionally added to food**, that can be ingested orally daily over a lifetime without an appreciable health risk.

NOAEL is divided by an uncertainty factor (100 or other) to account for the differences between animals and human, and sensitivity between humans, such as gender- and age-differences.

Usually expressed in “mg/kg (body weight)/day.”

- (1) Volatile Organic Compounds (VOCs) (Benzene, Toluene, etc)
- (2) Insect repellents (p-Dichlorobenzene, Naphthalene, etc)
- (3) *trans* Fatty acids
- (4) Others

# Health Damage and the Amount of Exposure (TDI)



TDI : Tolerable Daily Intake  
NOAEL : No Observed Adverse Effect Level  
LD50 : Lethal Dose 50





# MOE

Margin of Exposure

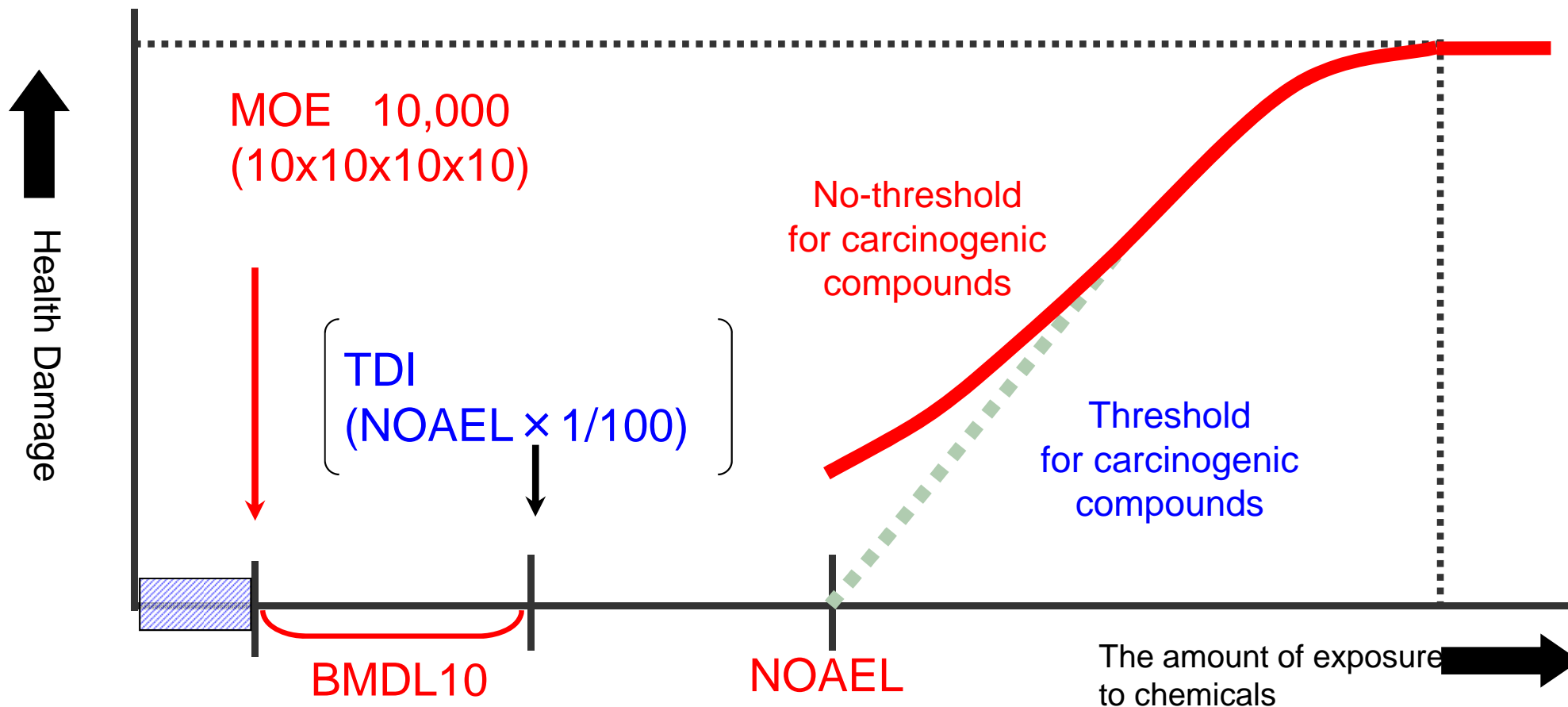
# MOE

## MOE (Margin of Exposure)

The ratio of its NOAEL to its theoretical, predicted dose or concentration of human intake. It is used to assess the dangerousness of substances that are both genotoxic and carcinogenic.

# Health Damage and the Amount of Exposure (MOE)

## Conceptual diagram



MOE : Margin of Exposure  
TDI : Tolerable Daily Intake  
NOAEL : No Observed Adverse Effect Level  
BMDL : BenchMark Dose lower confidence Level