

SAFETY DATA SHEET

ND9

Version	Revision Date:	MSDS Number:	Date of last issue: -
1.0	11/18/2014	30429-00001	Date of first issue: 11/18/2014

SECTION 1. IDENTIFICATION

Product name : ND9
Product code : SCA000000067

Manufacturer or supplier's details

Company name of supplier : DENSO Corporation
Address : 1-1, Showa-Cho
Kariya-shi Aichi-ken, Japan 448-8661
Telephone : +81-566-25-5511
Emergency telephone : +1-760-476-3962

Recommended use of the chemical and restrictions on use

Recommended use : Lubricant

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin sensitization : Category 1
Reproductive toxicity : Category 2

GHS Label element

Hazard pictograms : 

Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.
H361 Suspected of damaging fertility or the unborn child.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P261 Avoid breathing mist or vapors.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P308 + P313 IF exposed or concerned: Get medical advice/

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attention.
P333 + P313 If skin irritation or rash occurs: Get medical advice/
attention.
P363 Wash contaminated clothing before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste
disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous ingredients

Chemical Name	CAS-No.	Concentration (%)
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	>= 1 - < 5
Tris(methylphenyl) phosphate	1330-78-5	>= 1 - < 5

SECTION 4. FIRST AID MEASURES

- General advice : In the case of accident or if you feel unwell, seek medical advice immediately.
When symptoms persist or in all cases of doubt seek medical advice.
- If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water.
Remove contaminated clothing and shoes.
Get medical attention.
Wash clothing before reuse.
Thoroughly clean shoes before reuse.
- In case of eye contact : Flush eyes with water as a precaution.
Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.
Get medical attention if symptoms occur.
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.
- Protection of first-aiders : First Aid responders should pay attention to self-protection,
and use the recommended personal protective equipment
when the potential for exposure exists.

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Notes to physician : Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Dry chemical
Carbon dioxide (CO₂)
- Unsuitable extinguishing media : None known.
- Specific hazards during fire fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Oxides of phosphorus
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
Remove undamaged containers from fire area if it is safe to do so.
Evacuate area.
- Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus.
Use personal protective equipment.
-

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Prevent spreading over a wide area (e.g. by containment or oil barriers).
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.
- Methods and materials for containment and cleaning up : Soak up with inert absorbent material.
For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container.
Clean up remaining materials from spill with suitable absorbent.
Local or national regulations may apply to releases and disposal of this material, as well as those materials and items
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employed in the cleanup of releases. You will need to determine which regulations are applicable. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

- Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.
- Local/Total ventilation : Use only with adequate ventilation.
- Advice on safe handling : Do not get on skin or clothing.
Avoid inhalation of vapor or mist.
Do not swallow.
Avoid contact with eyes.
Handle in accordance with good industrial hygiene and safety practice.
Take care to prevent spills, waste and minimize release to the environment.
- Conditions for safe storage : Keep in properly labeled containers.
Store in accordance with the particular national regulations.
- Materials to avoid : Do not store with the following product types:
Strong oxidizing agents

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Hazardous components without workplace control parameters

Ingredients	CAS-No.
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8
Tris(methylphenyl) phosphate	1330-78-5

- Engineering measures** : Ensure adequate ventilation, especially in confined areas.
Minimize workplace exposure concentrations.

Personal protective equipment

- Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled

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release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection
Material

: Impervious gloves

Remarks

: Choose gloves to protect hands against chemicals depending on the concentration specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

Eye protection

: Wear the following personal protective equipment:
Safety glasses

Skin and body protection

: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

Hygiene measures

: Ensure that eye flushing systems and safety showers are located close to the working place.
When using do not eat, drink or smoke.
Wash contaminated clothing before re-use.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

: liquid

Color

: light yellow

Odor

: slight

Odor Threshold

: No data available

pH

: No data available

Melting point/freezing point

: -30 °C

Initial boiling point and boiling range

: No data available

Flash point

: 220 °C
Method: Cleveland open cup

Evaporation rate

: No data available

Flammability (solid, gas)

: Not applicable

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Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Density	: 1.0610 g/cm ³
Solubility(ies) Water solubility	: insoluble
Partition coefficient: n-octanol/water	: Not applicable
Autoignition temperature	: No data available
Thermal decomposition	: No data available
Viscosity Viscosity, dynamic	: No data available
Explosive properties	: Not explosive
Oxidizing properties	: The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: Not classified as a reactivity hazard.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: Can react with strong oxidizing agents.
Conditions to avoid	: None known.
Incompatible materials	: Oxidizing agents
Hazardous decomposition products	: No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

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Product:

Acute dermal toxicity : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 425
Assessment: The substance or mixture has no acute oral toxicity

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Tris(methylphenyl) phosphate:

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute toxicity estimate : 500 mg/kg
Method: Expert judgment
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute inhalation toxicity : LC50 (Rat): > 11.1 mg/l
Exposure time: 1 h
Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rabbit): 3,700 mg/kg

Acute toxicity estimate : 1,100 mg/kg
Method: Expert judgment
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Skin corrosion/irritation

Not classified based on available information.

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Result: Skin irritation

Tris(methylphenyl) phosphate:

Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Species: Rabbit
Result: No eye irritation

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Method: OECD Test Guideline 405

Tris(methylphenyl) phosphate:

Species: Rabbit

Result: No eye irritation

Respiratory or skin sensitization

Skin sensitization: May cause an allergic skin reaction.

Respiratory sensitization: Not classified based on available information.

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Test Type: Local lymph node assay (LLNA)

Routes of exposure: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: positive

Assessment: Probability or evidence of skin sensitization in humans

Tris(methylphenyl) phosphate:

Test Type: Local lymph node assay (LLNA)

Routes of exposure: Skin contact

Species: Mouse

Method: OECD Test Guideline 429

Result: Equivocal

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Method: OECD Test Guideline 473
Result: positive

: Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Germ cell mutagenicity- Assessment : Weight of evidence does not support classification as a germ cell mutagen.

Tris(methylphenyl) phosphate:

Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro
Result: negative

: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative

: Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative

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Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Suspected of damaging fertility or the unborn child.

Ingredients:

Tris(methylphenyl) phosphate:

- Effects on fertility : Test Type: One-generation reproduction toxicity study
Species: Rat
Application Route: Ingestion
Result: positive
- Effects on fetal development : Test Type: Embryo-fetal development
Species: Rat
Application Route: Ingestion
Method: OPPTS 870.3700
Result: positive
- Reproductive toxicity - Assessment : Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Repeated dose toxicity

Ingredients:

Tris(methylphenyl) phosphate:

Species: Rat
NOAEL: 1,000 mg/kg
Application Route: Ingestion
Exposure time: 3 m

Aspiration toxicity

Not classified based on available information.

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SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 7.5 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 67.9 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 9 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
- Toxicity to bacteria : EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

Tris(methylphenyl) phosphate:

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.6 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.146 mg/l
Exposure time: 48 h
- Toxicity to algae : EL50 (Selenastrum capricornutum (green algae)): > 2.500 mg/l
Exposure time: 72 h

NOEC (Selenastrum capricornutum (green algae)): > 2.500 mg/l
Exposure time: 72 h
- M-Factor (Acute aquatic toxicity) : 1
- Toxicity to fish (Chronic toxicity) : NOEC (Jordanella floridae): 0.01 mg/l
Exposure time: 28 d
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 0.1 mg/l
Exposure time: 21 d
- M-Factor (Chronic aquatic toxicity) : 10
- Toxicity to bacteria : EC50: > 1,000 mg/l
Exposure time: 3 h

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Persistence and degradability

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1.1 %
Exposure time: 28 d
Method: OECD Test Guideline 301D

Tris(methylphenyl) phosphate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 24.2 %
Exposure time: 28 d

Bioaccumulative potential

Ingredients:

p-tert-butylphenyl 1-(2,3-epoxy)propyl ether:

Partition coefficient: n-octanol/water : log Pow: 3.59

Tris(methylphenyl) phosphate:

Partition coefficient: n-octanol/water : log Pow: 5.93

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with local regulations.
Contaminated packaging : Dispose of as unused product.
Empty containers should be taken to an approved waste handling site for recycling or disposal.

SECTION 14. TRANSPORT INFORMATION

International Regulation

UNRTDG

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Tris(methylphenyl) phosphate, p-tert-butylphenyl 1-(2,3-epoxy)propyl ether)
Class : 9

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Packing group : III
Labels : 9

IATA-DGR

UN/ID No. : UN 3082
Proper shipping name : Environmentally hazardous substance, liquid, n.o.s.
(Tris(methylphenyl) phosphate, p-tert-butylphenyl 1-(2,3-epoxy)propyl ether)

Class : 9
Packing group : III
Labels : Miscellaneous
Packing instruction (cargo aircraft) : 964
Packing instruction (passenger aircraft) : 964

IMDG-Code

UN number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Tris(methylphenyl) phosphate, p-tert-butylphenyl 1-(2,3-epoxy)propyl ether)

Class : 9
Packing group : III
Labels : 9
EmS Code : F-A, S-F
Marine pollutant : yes

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation

49 CFR

UN/ID/NA number : UN 3082
Proper shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
(Tris(methylphenyl) phosphate, p-tert-butylphenyl 1-(2,3-epoxy)propyl ether)

Class : 9
Packing group : III
Labels : CLASS 9
ERG Code : 171
Marine pollutant : yes (Tris(methylphenyl) phosphate, p-tert-butylphenyl 1-(2,3-epoxy)propyl ether)

Remarks : Shipment by ground under DOT is non-regulated; however it may be shipped per the applicable hazard classification to facilitate multi-modal transport involving ICAO (IATA) or IMO.

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

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CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

US State Regulations

Pennsylvania Right To Know

Carbonic acid, dimethyl ester, polymer with 3-methyl-1,5-pentaediol, diheptyl ester	464892-96-4	50 - 70 %
Poly(propyleneglycol diacetate)	62576-71-0	20 - 30 %

New Jersey Right To Know

Carbonic acid, dimethyl ester, polymer with 3-methyl-1,5-pentaediol, diheptyl ester	464892-96-4	50 - 70 %
Poly(propyleneglycol diacetate)	62576-71-0	20 - 30 %
Benzene, mono-C15-36-branched alkyl derivs., C24-rich	90171-05-4	1 - 5 %
Benzene, mono-C12-13-branched alkyl derivs., fractionation bottoms	151911-58-9	1 - 5 %
p-tert-butylphenyl 1-(2,3-epoxy)propyl ether	3101-60-8	1 - 5 %
Tris(methylphenyl) phosphate	1330-78-5	1 - 5 %

California Prop 65 This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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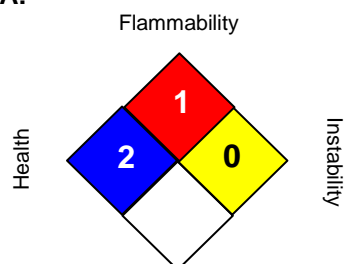
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



Special hazard.

HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Sources of key data used to compile the Material Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

US / Z8