

SAFETY DATA SHEET

Dura II A/C Flush Solvent

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification

Product identifier

Product name Dura II A/C Flush Solvent
Product number 69991, 69992, 409889, A99889

Recommended use of the chemical and restrictions on use

Application Cleaning agent.

Details of the supplier of the safety data sheet

Supplier Four Seasons
1801 Waters Ridge Drive
Lewisville, TX 75057

Manufacturer MICROCARE CORPORATION
595 John Downey Drive
New Britain, CT 06051
United States of America
CAGE: OATV9
Tel: + 1 800 638 0125, +1 860-827-0626
Fax: +1 860-827-8105
techsupport@microcare.com

Emergency telephone number

Emergency telephone CHEMTREC 1-800-424-9300 (within the U.S.)
+1 703-741-5970 (from anywhere in the world)

2. Hazard(s) identification

Classification of the substance or mixture

OSHA Regulatory Status This Product is Hazardous under the OSHA Hazard Communication Standard.

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332

Environmental hazards Aquatic Chronic 3 - H412

Human health Prolonged or repeated contact with skin may cause irritation, redness and dermatitis. Mild dermatitis, allergic skin rash.

Environmental The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Physicochemical Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. Gas or vapor displaces oxygen available for breathing (asphyxiant).

Label elements

Pictogram



Signal word Warning

Dura II A/C Flush Solvent

Hazard statements	H332 Harmful if inhaled. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P102 Keep out of reach of children. P261 Avoid breathing vapor/ spray. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P304+P340 If inhaled: Remove person to fresh air and keep comfortable for breathing. P312 Call a poison center/ doctor if you feel unwell. P404 Store in a closed container. P501 Dispose of contents/ container in accordance with national regulations.
Supplemental label information	Safety data sheet available on request. For use in industrial installations only.
Contains	trans-DICHLOROETHYLENE

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

trans-DICHLOROETHYLENE	60-100%
CAS number: 156-60-5	
Classification	
Flam. Liq. 2 - H225 Acute Tox. 4 - H332 Aquatic Chronic 3 - H412	
1,1,1,2,2,3,4,5,5,5-decafluoropentane	10-30%
CAS number: 138495-42-8	
Classification	
Aquatic Chronic 3 - H412	
1,1,1,3,3-PENTAFLUOROBUTANE	5-10%
CAS number: 406-58-6	
Classification	
Flam. Liq. 2 - H225	
DIMETHYL CARBONATE	1-5%
CAS number: 616-38-6	
Classification	
Flam. Liq. 2 - H225	

The full text for all hazard statements is displayed in Section 16.

Composition comments	The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of CFR 1900.1200 TSCA: The ingredients of this product are on the TSCA Inventory.
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Dura II A/C Flush Solvent

Ingredient notes PROPOSITION 65: This product does not contain chemicals considered by the State of California's Safe Drinking Water and Toxic Enforcement Act of 1986 as causing cancer or reproductive toxicity and for which warnings are now required.

Composition

4. First-aid measures

Description of first aid measures

General information	Never give anything by mouth to an unconscious person. Do not induce vomiting. Place unconscious person on the side in the recovery position and ensure breathing can take place. If breathing stops, provide artificial respiration. Consult a physician for specific advice.
Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. When breathing is difficult, properly trained personnel may assist affected person by administering oxygen. Get medical attention.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Place unconscious person on their side in the recovery position and ensure breathing can take place. Get medical attention immediately.
Skin Contact	Wash skin thoroughly with soap and water. Remove contaminated clothing and rinse skin thoroughly with water. Get medical attention if irritation persists after washing.
Eye contact	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.

Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure. Extensive use of the product in areas with inadequate ventilation may result in the accumulation of hazardous vapor concentrations. May cause discomfort. Symptoms following overexposure may include the following: Headache. Dizziness. Nausea, vomiting.
Inhalation	May cause an asthma-like shortness of breath. Vapors may cause headache, fatigue, dizziness and nausea. Arrhythmia (deviation from normal heart beat).
Ingestion	Pulmonary edema, frothy sputum.
Skin contact	Skin irritation. Prolonged or repeated contact with skin may cause irritation, redness and dermatitis.
Eye contact	May cause temporary eye irritation. Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. If in doubt, get medical attention promptly.
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5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	The product is not flammable. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Water spray. Never use water by itself on spillage; this will spread the spill and cause further contamination.

Special hazards arising from the substance or mixture

Flammability Class	The product is not flammable. Tag closed cup.
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Specific hazards	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors. Closed containers can burst violently when heated, due to excess pressure build-up.
Hazardous combustion products	Oxides of carbon. Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors. Fire creates: Carbonyl compounds. Chlorides.
<u>Advice for firefighters</u>	
Protective actions during firefighting	Containers close to fire should be removed or cooled with water.
Special protective equipment for firefighters	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Warn everybody of potential hazards and evacuate if necessary. Provide adequate ventilation. Avoid inhalation of vapors. Use approved respirator if air contamination is above an acceptable level. No smoking, sparks, flames or other sources of ignition near spillage. Follow precautions for safe handling described in this safety data sheet. For personal protection, see Section 8.
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Environmental precautions

Environmental precautions	Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.
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Methods and material for containment and cleaning up

Methods for cleaning up	Absorb spillage with non-combustible, absorbent material. Do not discharge into drains or watercourses or onto the ground. Contain and absorb spillage with sand, earth or other non-combustible material. Collect spillage with a shovel and broom, or similar and reuse, if possible. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. It is recommended that gloves are made of the following material: Neoprene.
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Reference to other sections	For personal protection, see Section 8. See Section 11 for additional information on health hazards. For waste disposal, see section 13.
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7. Handling and storage

Precautions for safe handling

Usage precautions	Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes.
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Conditions for safe storage, including any incompatibilities

Storage precautions	Store in tightly-closed, original container in a dry, cool and well-ventilated place.
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Storage class	Unspecified storage. The product is not flammable.
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Specific end uses(s)

Specific end use(s)	The identified uses for this product are detailed in Section 1.
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Reference to other sections.	Store away from incompatible materials (see Section 10).
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8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

trans-DICHLOROETHYLENE

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Long-term exposure limit (8-hour TWA): ACGIH 200 ppm 793 mg/m³

1,1,1,2,2,3,4,5,5,5-decafluoropentane

No information available that would effect occupational exposure limit values.

1,1,1,3,3-PENTAFLUOROBUTANE

Long-term exposure limit (8-hour TWA): SUP 1000 ppm

DIMETHYL CARBONATE

No information available that would effect occupational exposure limit values.

ACGIH = American Conference of Governmental Industrial Hygienists.

Additional Occupational Exposure Limits

Ingredient comments WEL = Workplace Exposure Limits

Exposure controls

Protective equipment



Appropriate engineering controls

No specific ventilation requirements. This product must not be handled in a confined space without adequate ventilation.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses. Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. The following protection should be worn: Chemical splash goggles or face shield.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. It is recommended that gloves are made of the following material: Nitrile rubber. Polyvinyl alcohol (PVA). Viton rubber (fluoro rubber).

Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination. Wear apron or protective clothing in case of contact.

Hygiene measures

Avoid inhalation of spray mist and contact with skin and eyes. When using do not eat, drink or smoke. Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection

Vapors are heavier than air and may travel along the floor and accumulate in the bottom of containers. In confined or poorly-ventilated spaces, a supplied-air respirator must be worn. Wear self-contained breathing apparatus with full facepiece.

Thermal hazards

Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance	Clear liquid.
Color	Colorless.
Odor	Slight. Ether.
Odor threshold	No information available.

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pH	No information available.
Melting point	No information available.
Initial boiling point and range	estimated 41°C/106°F @ 101.3 kPa
Flash point	The product is not flammable. Tag Closed Cup (ASTM D 56)
Evaporation rate	>1 (ethanol = 1)
Evaporation factor	No information available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	Upper flammable/explosive limit: 13.5 %(V) Lower flammable/explosive limit: 4.3 %(V)
Vapor pressure	37.9 kPa @ 25°C
Vapor density	3.4
Relative density	1.30 @ 25°C
Bulk density	Not applicable.
Solubility(ies)	Slightly soluble in water.
Partition coefficient	No information available.
Auto-ignition temperature	No information available.
Decomposition Temperature	No information available.
Viscosity	No information available.
Refractive index	No information available.
Particle size	Not applicable.
Molecular weight	Not applicable.
Volatility	100%
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	This product contains a maximum VOC content of 975 g/l.
Flammability	The product is not flammable.

10. Stability and reactivity

Reactivity	The following materials may react strongly with the product: Alkaline earth metals. Powdered metal.
Stability	Stable at normal ambient temperatures and when used as recommended.
Possibility of hazardous reactions	Will not polymerize.
Conditions to avoid	Keep away from heat, sparks and open flame. Thermal decomposition or combustion products may include the following substances: Toxic and corrosive gases or vapors.
Materials to avoid	Alkali metals. Alkaline earth metals. Powdered metal.

Dura II A/C Flush Solvent

Hazardous decomposition products Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO₂). Carbon monoxide (CO).

11. Toxicological information

Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 14.67

Inhalation Vapors may irritate throat/respiratory system. A single exposure may cause the following adverse effects: Coughing. Difficulty in breathing.

Ingestion May cause stomach pain or vomiting. May cause nausea, headache, dizziness and intoxication.

Skin Contact Product has a defatting effect on skin. May cause allergic contact eczema.

Eye contact May cause temporary eye irritation.

Medical Symptoms Gas or vapor in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Headache. Fatigue. Nausea, vomiting.

Toxicological information on ingredients.

trans-DICHLOROETHYLENE

Other health effects There is no evidence that the product can cause cancer.

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 11.0

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE oral (mg/kg) 5,000.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,000.0

Species Rat

ATE dermal (mg/kg) 5,000.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 114.0

Species Rat

ATE inhalation (vapours mg/l) 114.0

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Skin corrosion/irritation

Animal data	Not irritating. Rabbit
Human skin model test	Data lacking.
Extreme pH	Not applicable. Not corrosive to skin.

Serious eye damage/irritation

Serious eye damage/irritation	Not irritating. Rabbit
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Respiratory sensitization

Respiratory sensitization	Data lacking.
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Skin sensitization

Skin sensitization	Not sensitizing. - Guinea pig: Not sensitizing.
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Germ cell mutagenicity

Genotoxicity - in vitro	This substance has no evidence of mutagenic properties.
Genotoxicity - in vivo	This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity	Does not contain any substances known to be carcinogenic.
IARC carcinogenicity	Not listed.
NTP carcinogenicity	Not listed.
OSHA Carcinogenicity	Not listed.

Reproductive toxicity

Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
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Skin Contact	Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.
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Eye contact	May cause eye irritation.
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Acute and chronic health hazards	There is no evidence that the product can cause cancer.
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1,1,1,3,3-PENTAFLUOROBUTANE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg)	2,000.0
Species	Rat

ATE oral (mg/kg)	2,000.0
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Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l)	100,000.0
Species	Rat

Dura II A/C Flush Solvent

ATE inhalation (vapours mg/l) 100,000.0

Specific target organ toxicity - single exposure

STOT - single exposure LOAEL 75100 ppm, Inhalation,

Specific target organ toxicity - repeated exposure

STOT - repeated exposure NOAEC 6 mg/l, Inhalation, Rat

Target organs Liver Kidneys

DIMETHYL CARBONATE

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 140.0

ATE inhalation (vapours mg/l) 140.0

12. Ecological Information

Ecotoxicity The product contains a substance which is toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Ecotoxicity Low acute toxicity to aquatic organisms.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Ecotoxicity It is unlikely that the substance will dissolve in water in amounts big enough to have a toxic effect on fish and daphnies.

Toxicity Very toxic to aquatic organisms.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 1350 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 220 mg/l, Daphnia magna

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 13.9 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates LC₅₀, 48 hours: 11.7 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: >120 mg/l, Algae

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DIMETHYL CARBONATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 1000 mg/l, Leuciscus idus (Golden orfe)

Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

DIMETHYL CARBONATE

Persistence and degradability The product is readily biodegradable.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

1,1,1,2,2,3,4,5,5,5-decafluoropentane

Bio-Accumulative Potential Bioaccumulation is unlikely to be significant because of the low water-solubility of this product.

Partition coefficient Pow: 2.7

DIMETHYL CARBONATE

Partition coefficient log Pow: 0.23

Mobility in soil

Mobility No data available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Mobility The product has poor water-solubility.

Other adverse effects

Other adverse effects The product contains a substance or substances that will contribute to global warming (greenhouse effect).

13. Disposal considerations

Waste treatment methods

General information Refer to manufacturer/supplier for information on recovery/recycling. Waste should be treated as controlled waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

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Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Reuse or recycle products wherever possible.

14. Transport information

General Not regulated. The product is not covered by international regulations on the transport of dangerous goods (IMDG, IATA, DOT).

UN proper shipping name

Proper shipping name (TDG) Non Regulated Liquid Cleaning Compound NOS

Proper shipping name (IMDG) Non Regulated Liquid Cleaning Compound NOS

Proper shipping name (ICAO) Non Regulated Liquid Cleaning Compound NOS

Proper shipping name (DOT) Non Regulated Liquid Cleaning Compound NOS

Transport hazard class(es)

Not applicable. No information required.

Transport labels

No transport warning sign required.

Packing group

Not applicable. No information required.

Environmental hazards

Environmentally Hazardous Substance

No.

Special precautions for user

Not determined.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. No information required.

15. Regulatory information

US Federal Regulations

SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities

Not listed.

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

trans-DICHLOROETHYLENE

Final CERCLA RQ: 1000(454) pounds (Kilograms)

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

Not listed.

SARA 313 Emission Reporting

Not listed.

CAA Accidental Release Prevention

Not listed.

Dura II A/C Flush Solvent

SARA (311/312) Hazard Categories

Acute

OSHA Highly Hazardous Chemicals

Not listed.

US State Regulations

California Proposition 65 Carcinogens and Reproductive Toxins

Not listed.

California Air Toxics "Hot Spots" (A-I)

Not listed.

California Air Toxics "Hot Spots" (A-II)

Not listed.

California Directors List of Hazardous Substances

trans-DICHLOROETHYLENE

Present.

Massachusetts "Right To Know" List

trans-DICHLOROETHYLENE

Present.

DIMETHYL CARBONATE

Present.

Rhode Island "Right To Know" List

Not listed.

Minnesota "Right To Know" List

Not listed.

New Jersey "Right To Know" List

DIMETHYL CARBONATE

Present.

Pennsylvania "Right To Know" List

trans-DICHLOROETHYLENE

Present.

DIMETHYL CARBONATE

Present.

Inventories

Dura II A/C Flush Solvent

US - TSCA

Yes

1,1,1,2,2,3,4,5,5,5-DECAFLUOROPENTANE (CAS# 138495-42-8) is controlled by TSCA Section 5, Significant New Use Rule (SNUR; 40 CFR 721.5645) The approved uses are: precision and general cleaning, carrier fluid, displacement drying, printed circuit board cleaning, particulate removal and film cleaning, process medium, heat transfer fluid (dielectric and non-dielectric), and test fluid. Processors and users of this substance must also comply with the applicable general SNUR requirements set forth in 40 CFR 721 subpart A, including export notification requirements if applicable (40 CFR 721.20), and the applicable record keeping requirements set forth at 40 CFR 721.125.

16. Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	3/27/2018
Revision	14
Supersedes date	11/7/2017
SDS No.	BULK - 69991
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapor. H332 Harmful if inhaled. H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.