

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

Contact Person techsupport@microcare.com

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

Emergency telephone number

Emergency telephone CHEMTREC (800) 424-9300

2. Hazard(s) identification

Classification of the substance or mixture

Physical hazards Not Classified

Health hazards Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2A - H319 STOT SE 3 - H336 Asp. Tox. 1 - H304

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 Danger

Dura II A/C Flush Solvent

Hazard statements	H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P261 Avoid breathing vapor/ spray. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 If on skin: Wash with plenty of water. P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P331 Do NOT induce vomiting. P332+P313 If skin irritation occurs: Get medical advice/ attention. P337+P313 If eye irritation persists: Get medical advice/ attention. P403+P233 Store in a well-ventilated place. Keep container tightly closed. 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 - H302	
Skin Irrit. 2 - H315	
Eye Irrit. 2A - H319	
STOT SE 3 - H336	
Asp. Tox. 1 - H304	
Aquatic Chronic 3 - H412	
1,1,1,2,2,3,3,4,4,5,5,5-decafluoropentane	10-30%
CAS number: 138495-42-8	
Classification	
Aquatic Chronic 3 - H412	

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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 are 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.

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.

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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.

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. TCC (Tag closed cup).

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.

Advice for firefighters

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.

Environmental precautions

Environmental precautions Contain spillage with sand, earth or other suitable non-combustible material. Avoid release to the environment.

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.

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.

7. Handling and storage

Precautions for safe handling

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Usage precautions Provide adequate ventilation. Avoid inhalation of vapors/spray and contact with skin and eyes.

Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place.

Storage class Unspecified storage. The product is not flammable.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

Reference to other sections. Store away from incompatible materials (see Section 10).

8. Exposure Controls/personal protection

Control parameters

Occupational exposure limits

trans-DICHLOROETHYLENE

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

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

Long-term exposure limit (8-hour TWA): SUP 200 ppm

1,1,1,3,3-PENTAFLUOROBUTANE

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

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 hands at the end of each work shift and before eating, smoking and using the toilet.

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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.
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	No information available.
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.
Flammability	The product is not flammable.

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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.
Hazardous decomposition products	Heating may generate the following products: Toxic and corrosive gases or vapors. Halogenated hydrocarbons. Hydrogen fluoride (HF). Carbon dioxide (CO ₂). Carbon monoxide (CO).

11. Toxicological information

Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 1,646.67

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 32,133.33

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 - oral

Acute toxicity oral (LD₅₀ mg/kg) 1,235.0

Species Rat

ATE oral (mg/kg) 1,235.0

Acute toxicity - dermal

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

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Species Rabbit

ATE dermal (mg/kg) 5,000.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 24,100.0

Species Rat

ATE inhalation (vapours mg/l) 24,100.0

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

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

Respiratory sensitization

Respiratory sensitization Data lacking.

Skin sensitization

Skin sensitization Not sensitizing. - Guinea pig: Not sensitizing.

Germ cell mutagenicity

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

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Genotoxicity - in vivo	This substance has no evidence of mutagenic properties.
<u>Carcinogenicity</u>	
Carcinogenicity	Does not contain any substances known to be carcinogenic.
IARC carcinogenicity	Not listed.
NTP carcinogenicity	Not listed.
OSHA Carcinogenicity	Not listed.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
Skin Contact	Skin irritation should not occur when used as recommended. May cause defatting of the skin but is not an irritant.
Eye contact	May cause eye irritation.
Acute and chronic health hazards	There is no evidence that the product can cause cancer.

1,1,1,3,3-PENTAFLUOROBUTANE

<u>Acute toxicity - oral</u>	
Acute toxicity oral (LD₅₀ mg/kg)	2,000.0
Species	Rat
ATE oral (mg/kg)	2,000.0
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ vapours mg/l)	100,000.0
Species	Rat
ATE inhalation (vapours mg/l)	100,000.0
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	LOAEL 75100 ppm, Inhalation,
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	NOAEC 6 mg/l, Inhalation, Rat
Target organs	Liver Kidneys

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

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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

Toxicity Very toxic to aquatic organisms.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

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 toxicity - fish LC₅₀, 96 hours: 13.9 mg/l, Onchorhynchus 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

DIMETHYL CARBONATE

Toxicity Not considered toxic to fish.

Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Persistence and degradability No data available.

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

Persistence and degradability The product is not expected to be biodegradable.

DIMETHYL CARBONATE

Persistence and degradability The product is biodegradable.

Bioaccumulative potential

Bio-Accumulative Potential No data available on bioaccumulation.

Partition coefficient No information available.

Ecological information on ingredients.

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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

Mobility in soil

Mobility No data available.

Ecological information on ingredients.

trans-DICHLOROETHYLENE

Mobility The product has poor water-solubility.

Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB. No data available.

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.

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 Number

Not applicable. No information required.

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.

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Transport labels

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.

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.

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Massachusetts "Right To Know" List

trans-DICHLOROETHYLENE

Present.

DIMETHYL CARBONATE

Yes.

Rhode Island "Right To Know" List

Not listed.

Minnesota "Right To Know" List

Not listed.

New Jersey "Right To Know" List

DIMETHYL CARBONATE

Yes.

Pennsylvania "Right To Know" List

trans-DICHLOROETHYLENE

Present.

DIMETHYL CARBONATE

Yes.

Inventories

US - TSCA

Yes

16. Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	2/23/2016
Revision	5
Supersedes date	12/30/2015
SDS No.	BULK - 69991
SDS status	Approved.
Hazard statements in full	H225 Highly flammable liquid and vapor. H302 Harmful if swallowed. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H336 May cause drowsiness or dizziness. H412 Harmful to aquatic life with long lasting effects.
NFPA - health hazard	Irritation, minor residual injury. (1)
NFPA - flammability hazard	Will not burn. (0)
NFPA - instability hazard	Unstable if heated. (1)
NFPA - special hazard	N/A
ACA HMIS Health rating.	Slight Hazard. (1)

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ACA HMIS Flammability rating.	Will not burn. (0)
ACA HMIS Physical hazard rating.	Unstable if heated. (1)
ACA HMIS Personal protection rating.	X Ask your supervisor for guidance

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.