1. SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name	Scan´ spray black & white
Product code	500990
SDS Number	1471
Product use	Coating material for the optical impression or for medical use

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	
Industrial/Professional use spec	For professional use only
Use of the substance/mixture	Auxiliary for manufacture of dental prothesis
Uses advised against	No additional information available.

1.3. Details of the supplier of the safety data sheet

Dentaco GmbH & Co.KG
Max-Keith-Str. 46
45136 Essen
Deutschland
Tel.: + 49 (0) 201/ 8098290
Fax: + 49 (0) 201/ 80982999
Internet: www.dentaco.de ; info@dentaco.de
E-Mail: HSE@rle.de

1.4. Emergency telephone number

+ 49 (0) 201/ 8098290 (Mo. - Fr. 09:00 - 17:00)

2. SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008

Physical hazards	Aerosol, Category 3	H229	Pressurised container: May burst if heated.

Pressurised container: May burst if heated

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008

Signal word	Warning
Hazard statements	
H229	Pressurised container: May burst if heated.
Precautionary statements	
Prevention	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P251	Do not pierce or burn, even after use.
Storage	
P410+P412	Protect from sunlight. Do not expose to temperatures exceeding 50 °C

2.3. Other hazards

No additional information available.

3. SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical name	CAS- No EC- No Index No RRN	%	Classification according to Regulation (EC) No. 1272/2008	Notes
1,1,1,2,3,3,3-heptafluoropropane	431-89-0 207-079-2 01-2119485489-18-XXXX	90 - < 100	Press. Gas (Comp.), H280	

Full text of H-statements: see section 16

4. SECTION 4: First aid measures

4.1. Description of first aid measures

General information Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation Remove person to fresh air and keep comfortable for breathing.

Skin contact: Wash skin with plenty of water.

Eyes contact Rinse eyes with water as a precaution.

Ingestion Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects: None known.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Water spray. Dry powder.

Unsuitable extinguishing media Do not use water jet.

5.2. Special hazards arising from the substance or mixture

Explosion hazard Pressurised container: May burst if heated.

Hazardous combustion products Carbon monoxide. Carbon dioxide. Nitrogen oxides.

5.3. Advice for firefighters

Precautionary measures fire Evacuate area. In case of fire and/or explosion do not breathe fumes. Do not dispose of fire-fighting water in the environment.

Firefighting instructions In case of fire and/or explosion do not breathe fumes. On heating, there is a risk of bursting due to internal pressure build-up. Cool down the containers exposed to heat with a water spray.

Protection during firefighting Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

6. SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures Keep unnecessary personnel away.

For non-emergency personnel

Protective equipment	Use personal protective equipment as required.
Emergency procedures	Avoid breathing dust, mist or spray. No flames, no sparks. Eliminate all sources of ignition. Provide adequate ventilation. Ventilate spillage area.

For emergency responders

Protective equipment	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment	Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	Move containers from fire area if it can be done without personal risk.
Other information	Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

7. SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed	Do not breathe vapours. Ensure adequate air ventilation. Observe good industrial hygiene practices.
Precautions for safe handling	Ensure good ventilation of the work station. Wear personal protective equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not pierce or burn, even after use.
Hygiene measures	Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures	Keep in a cool, well-ventilated place away from heat. Contents under pressure.
Storage conditions	Protect from sunlight. Do not expose to temperatures exceeding 50 °C/ 122 °F. Store in a well-ventilated place. Keep cool.
Packaging materials	Keep only in the original container in a cool,well-ventilated place away from combustible materials.

7.3. Specific end use(s)

For medical use.

8. SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Contains no substances with occupational exposure limits.

DNEL: Derived no effect level

No data available

Components	Type	Route	Value	Form
1,1,1,2,3,3,3-heptafluoropropane (431-89-0)	Worker	Inhalation	61279 mg/m³	Long-term - systemic effects
	Consumer	Inhalation	6533 mg/m³	Long-term - systemic effects

PNEC: Predicted no effect concentration

No data available

Components	Type	Route	Value	Form
1,1,1,2,3,3,3-	Not applicable	Freshwater	0.1 mg/l	

heptafluoropropane (431-89-0)	Freshwater	1 mg/l	Intermittent release
	sediment	1.3 mg/kg dwt	Freshwater
	STP	1.73 mg/l	

8.2. Exposure controls

Appropriate engineering controls Ensure good ventilation of the work station

Materials for protective clothing No additional information available.

Individual protection measures, such as personal protective equipment (PPE)

Eye protection Chemical goggles or safety glasses

Skin protection

Hand protection The recommendation is only valid for the supplied product and the stated application. Special working conditions, like heat or mechanical strain, which deviate from the test conditions, can reduce the protective effect provided by the recommended glove

Material	Permeation	Thickness (mm)	Comments
Butyl rubber	6 (> 480 minutes)	0,6	EN ISO 374
Viton	6 (> 480 minutes)	0,6	EN ISO 374

Other protective measures No additional information available.

Respiratory protection No respiratory protection needed under normal use conditions.

Skin and body protection Wear suitable protective clothing

Thermal hazard protection No additional information available.

Environmental exposure controls Avoid release to the environment.

9. SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Aerosol.
Colour	Grey.
Odour	Characteristic.
Odour threshold	No data available
pH	No data available
Relative evaporation rate (butylacetate=1)	No data available
Melting point	No data available
Freezing point	No data available
Boiling point	-16 - -18 °C
Flash point	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	No data available
Vapour pressure	4000 - 4500 hPa 20°C
Relative vapour density at 20 °C	No data available
Relative density	No data available
Density	1.4 g/cm³
Solubility	No data available
Log Pow	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Pressurised container: May burst if heated.
Oxidising properties	No data available
Explosive limits	No data available

9.2. Other information

No additional information available.

10. SECTION 10: Stability and reactivity

10.1. Reactivity Pressurised container: May burst if heated.

10.2. Chemical stability Stable under normal conditions.

10.3. Possibility of hazardous reactions No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials No additional information available.

10.6. Hazardous decomposition products Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Substance

Name	Method	Type	Exposure route	Value	Unit	Species	Remarks
1,1,1,2,3,3,3-heptafluoropropane (431-89-0)	(OECD 403 method)	LC50	Inhalation	> 788696	ppm/4h	rat	

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met

Carcinogenicity Based on available data, the classification criteria are not met

Reproductive toxicity Based on available data, the classification criteria are not met

STOT-single exposure Based on available data, the classification criteria are not met

STOT-repeated exposure Based on available data, the classification criteria are not met

Aspiration hazard Based on available data, the classification criteria are not met

12. SECTION 12: Ecological information

12.1. Toxicity

Ecology - general The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Acute aquatic toxicity

Substance / Product	Trophic level	Species	Type	Value	Duration	Remarks
1,1,1,2,3,3,3-heptafluoropropane (431-89-0)	Fish	Danio rerio	LC50	> 200 mg/l	96h	(OECD 203 method)
	crustacea	Daphnia magna	EC50	> 200 mg/l	48h	(OECD 202 method)
	algae	algae	EC50	> 114 mg/l	72h	(OECD 201 method)

12.2. Persistence and degradability

1,1,1,2,3,3,3-heptafluoropropane (431-89-0)

Biodegradation 1 % OECD 301 D

12.3. Bioaccumulative potential

1,1,1,2,3,3,3-heptafluoropropane (431-89-0)

Log Pow	2.289

12.4. Mobility in soil

No additional information available.

12.5. Results of PBT and vPvB assessment

Component	
1,1,1,2,3,3,3-heptafluoropropane (431-89-0)	This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII. This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII.

12.6. Other adverse effects

No additional information available.

13. SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods	Disposal must be done according to official regulations. Empty containers should be taken for recycling, recovery or waste in accordance with local regulation. This material and its container must be disposed of in a safe manner.
Product/Packaging disposal recommendations	Dispose in a safe manner in accordance with local/national regulations. Do not pierce or burn, even after use. Empty containers should be taken to an approved waste handling site for recycling or disposal. Disposal must be done according to official regulations.
European List of Waste (LoW) code	
16 05 05	gases in pressure containers other than those mentioned in 16 05 04
15 01 10*	packaging containing residues of or contaminated by dangerous substances

14. SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. (ADR)	1950
UN-No. (IMDG)	1950
UN-No. (IATA)	1950
UN-No. (ADN)	1950
UN-No. (RID)	1950

14.2. UN proper shipping name

Proper Shipping Name (ADR)	AEROSOLS
Proper Shipping Name (IMDG)	AEROSOLS
Proper Shipping Name (IATA)	Aerosols, non-flammable
Proper Shipping Name (ADN)	AEROSOLS
Proper Shipping Name (RID)	AEROSOLS

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR)	2.2
Danger labels (ADR)	2.2

IMDG

Transport hazard class(es) (IMDG)	2.2
Danger labels (IMDG)	2.2

IATA

Transport hazard class(es) (IATA)	2.2
Hazard labels (IATA)	2.2

ADN

Transport hazard class(es) (ADN)	2.2
Danger labels (ADN)	2.2

RID

Transport hazard class(es) (RID)	2.2
Danger labels (RID)	2.2

14.4. Packing group

Packing group (ADR)	Not applicable
Packing group (IMDG)	Not applicable
Packing group (IATA)	Not applicable
Packing group (ADN)	Not applicable
Packing group (RID)	Not applicable

14.5. Environmental hazards

Dangerous for the environment	No
Marine pollutant	No
Other information	No supplementary information available.

14.6. Special precautions for user

Overland transport

Classification code (ADR)	5A
Special provisions (ADR)	190, 327, 344, 625
Limited quantities (ADR)	1l
Packing instructions (ADR)	P207
Tunnel restriction code (ADR)	E

Transport by sea

Special provisions (IMDG)	63, 190, 277, 327, 344, 959
Limited quantities (IMDG)	SP277
Packing instructions (IMDG)	P207, LP02
EmS-No. (Fire)	F-D
EmS-No. (Spillage)	S-U
Stowage category (IMDG)	None

Air transport

PCA Excepted quantities (IATA)	E0
PCA Limited quantities (IATA)	Y203
PCA limited quantity max net quantity (IATA)	30kgG
PCA packing instructions (IATA)	203
PCA max net quantity (IATA)	75kg
CAO packing instructions (IATA)	203
CAO max net quantity (IATA)	150kg
Special provisions (IATA)	A98, A145, A167, A802

ERG code (IATA)	2L

Inland waterway transport

Classification code (ADN)	5A
Special provisions (ADN)	190, 327, 344, 625
Limited quantities (ADN)	1 L

Rail transport

Special provisions (RID)	190, 327, 344, 625
Limited quantities (RID)	1L
Packing instructions (RID)	P207, LP200
Hazard identification number (RID)	20

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

15. SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU-Regulations

Contains no REACH substances with Annex XVII restrictions

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Other information, restriction and prohibition regulations	1,1,1,2,3,3,3-Heptafluoropropane (R-227ea), CAS No : 431-89-0 is exempted from the prohibition of mixtures containing fluorinated greenhouse gases in accordance with REGULATION (EU) No 517/2014 as it is used for medical applications.
Seveso Information	Not applicable.

National regulations

No additional information available.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

16. SECTION 16: Other information

Indication of changes

Logo.

Abbreviations and acronyms

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AGW	Occupational exposure limit value
ATE	Acute Toxicity Estimate according to Regulation (EC) 1272/2008 (CLP)
BAM	Federal Institute for Materials Research and Testing, Germany
BAT	Maximum permissible concentration of biological working substances.
BCF	Bio-concentration factor.
BLV	Biological limit values
BLV	Biological limit values (BGW, Austria)
BMGV	Biological Monitoring Guidance Value (EH40,UK).
BOD5	Biochemical oxygen demand within 5 days
BOD	Biochemical oxygen demand

bw	Body weight.
calcd.	Calculated
CAS	Chemical Abstract Service.
CEN	European Committee for Standardization
CESIO	European Committee on Organic Surfactants and their Intermediates.
COD	Chemical oxygen demand
CLP	Classification, Labeling and Packaging REGULATION (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures.
CMR	Carcinogenic, Mutagenic or Reproduction Toxic Substances
CSA	Chemical safety assessment
CSR	Chemical Safety Report.
DMEL	Derived Minimum Effect Level.
DNEL	Derived no effect level
EAC	European waste catalogue
EC	European community
EC50	Effective concentration
EINECS	European Inventory of Existing Commercial Chemical Substances.
ELINCS	European List of Notified Chemical Substances.
EN	European norm.
ERC	ERC (Environmental Release category)
EU	European Union
GLP	Good Laboratory Practice.
GHS	Globally Harmonized System of Classification and Labeling of Chemicals.
GW/VL	Occupational exposure limit value.
GW-kw/VL-cd	Occupational exposure limit value - short term.
GW-M/VL-M	Occupational exposure limit value – "Ceiling".
IATA	International Air Transport Association
IBC code	International Bulk Chemical (Code) (International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk).
ICAO	International Civil Aviation Organization
IC50	Inhibition Concentration 50%.
IECSC	Inventory of Existing Chemical Substances in China.
IMDG	International Maritime Dangerous Goods
ISO	International Standards Organization.
IUPAC	International Union of Pure and Applied Chemistry
LC50	Lethal Concentration 50%.
LCLo	Lowest published lethal concentration.
LD50	Lethal Dose 50%.
LOAEL	Lowest Observed Adverse Effect Level
LOEC	Lowest observable effect concentration.
LOEL	Lowest observable effect level.
LQ	Limited quantities
TRK-Kzw	Threshold limit value - Short-term exposure limit / Technical reference concentration - short-time value, Austria.
MAK-Mow	Maximum allowable workplace concentration – instantaneous value, Austria.
MAK-Tmw, TRK-Tmw	Maximum allowable workplace concentration – daily mean value / Technical standard concentration – daily mean value, Austria.

MAK	Threshold limit values Germany.
MARPOL	International Convention for the Prevention of Pollution from Ships.
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
NOEL	no-observed-effect level
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limits
PBT	Persistent Bioaccumulative Toxic
PC (Chemical product category)	PC (Chemical product category)
PNEC	Predicted No-Effect Concentration
POCP	Photochemical ozone creation potential.
POP	Persistent Organic Pollutants
PPE	Personal protective equipment
Process category	Process category
REACH	Registration, Evaluation and Authorization of Chemicals (REGULATION (EC) No 1907/2006 concerning Registration, Evaluation Authorization and Restriction of Chemicals).
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SCL	Specific concentration limit.
STEL	Short-term Exposure Limit
STP	Sewage treatment plant
SU (Sector of use)	SU (Sector of use)
SVHC	Substance of Very High Concern.
TLV	Threshold Limit Value
TRGS	Technical Rules for Hazardous Substances (German Standard).
TWA	Time Weighted Average
UVCB	Substances of Unknown or Variable composition, Complex reaction products or Biological materials
VbF	Ordinance on Flammable Liquids, Austria
VOC	Volatile organic compounds
vPvB	Very Persistent and Very Bioaccumulative
WEL-TWA	Workplace Exposure Limit-Long term exposure limit (8-hour TWA(=time weighted average)reference period).
WEL-STEL	Workplace Exposure Limit-Short term exposure limit (15-minute reference period).

Data sources REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006..

Full text of H- and EUH-statements

Aerosol 3	Aerosol, Category 3.
Press. Gas (Comp.)	Gases under pressure : Compressed gas.
H229	Pressurised container: May burst if heated.
H280	Contains gas under pressure; may explode if heated.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]

Aerosol 3	H229

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.