Rudolf Hensel GmbH
21039 Börnsen

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

1.1 Product identifier

HENSOTHERM® V 84

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

1.2.1 Relevant uses

Dilution

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Rudolf Hensel GmbH
Lauenburger Landstr. 11
21039 Börnsen / GERMANY
Phone +49 (0)40-72 10 62 10
Fax +49 (0)40-72 10 62 52
Homepage www.rudolf-hensel.de
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Technical information info@rudolf-hensel.de

Safety Data Sheet sdb@chemiebuero.de

1.4 Emergency telephone number

Company +49 (0)40-72 10 62 10 (7:00 - 17:00) 0172 4115390 (17:00 - 07:00)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture [REGULATION (EC) No 1272/2008]

Flam. Liq. 3: H226 Flammable liquid and vapour.
STOT SE 3: H336 May cause drowsiness or dizziness.

2.2 Label elements

Hazard pictograms

Signal word WARNING

Contains: 2-Methoxy-1-methylethyl acetate

Hazard statements

H226 Flammable liquid and vapour.
H336 May cause drowsiness or dizziness.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260 Do not breathe vapours / spray.
P271 Use only outdoors or in a well-ventilated area.
P312 Call a POISON CENTER / doctor if you feel unwell.
P501 Dispose of contents/container in accordance with local/national regulation.

2.3 Other hazards

Human health dangers

If swallowed or in the event of vomiting, risk of product entering the lungs.
Frequent persistent contact with the skin can cause skin irritation.
It is essential for pregnant women to avoid inhaling the product and not to let it come in contact with the skin.

Environmental hazards Does not contain any PBT or vPvB substances.

Other hazards Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

Product-type:

3.2 The product is a mixture.

Range [%]	Substance
80 - <100	2-Methoxy-1-methylethyl acetate
	CAS: 108-65-6, EINECS/ELINCS: 203-603-9, EU-INDEX: 607-195-00-7, Reg-No.: 01-2119475791-29-XXXX
	GHS/CLP: Flam. Liq. 3: H226 - STOT SE 3: H336
5 - <10	n-Butyl acetate
	CAS: 123-86-4, EINECS/ELINCS: 204-658-1, EU-INDEX: 607-025-00-1, Reg-No.: 01-2119485493-29-XXXX
	GHS/CLP: Flam. Liq. 3: H226 - - STOT SE 3: H336
0,1 - <0,3	2-Methoxypropyl acetate
	CAS: 70657-70-4, EINECS/ELINCS: 274-724-2, EU-INDEX: 607-251-00-0
	GHS/CLP: Flam. Liq. 3: H226 - Repr. 1B: H360D - STOT SE 3: H335

Comment on component parts Substances of Very High Concern - SVHC: substances are not contained or are below 0.1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Take off contaminated clothing and wash before reuse.

Inhalation Remove person to fresh air and keep comfortable for breathing.
In the event of symptoms seek medical treatment.

Skin contact When in contact with the skin, clean with soap and water.
Consult a doctor if skin irritation persists.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.

Ingestion Seek medical advice immediately.
Do not induce vomiting.
Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects
Drowsiness

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media Water spray jet.
Dry powder.
Carbon dioxide.
Foam.

Extinguishing media that must not be used Full water jet.

5.2 Special hazards arising from the substance or mixture

In the event of fire the following can be released:
Carbon monoxide (CO)

5.3 Advice for firefighters

Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.
Cool containers at risk with water spray jet.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Keep away from all sources of ignition.
Ensure adequate ventilation.
Use breathing apparatus if exposed to vapours.
Use personal protective equipment.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.

6.3 Methods and material for containment and cleaning up

Take up with absorbent material (e.g. sand).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Provide suitable vacuuming at the processing area.
Provide good room ventilation even at ground level (vapours are heavier than air).
Use solvent-resistant equipment.

Vapours can form an explosive mixture with air.
Take precautionary measures against static discharges.
Keep away from all sources of ignition - Refrain from smoking.
Ignitable mixtures can be formed in the empty container.
Use explosion-proofed equipment/fittings and non-sparkling tools.

Do not eat, drink, smoke or take drugs at work.
After worktime and before work breaks the affected skin areas must be thoroughly cleaned.
Use barrier skin cream.

7.2 Conditions for safe storage, including any incompatibilities

Provide solvent-resistant and impermeable floor.
Keep only in original container.
Prevent penetration into the ground.

Do not store together with oxidizing agents.
Do not store together with food and animal food/diet.

Keep container tightly closed.
Keep container in a well-ventilated place.
Protect from heat/overheating.

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls / personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (GB)

Substance
2-Methoxy-1-methylethyl acetate
CAS: 108-65-6, EINECS/ELINCS: 203-603-9, EU-INDEX: 607-195-00-7, Reg-No.: 01-2119475791-29-XXXX
Long-term exposure: 50 ppm, 274 mg/m³, Sk
Short-term exposure (15-minute): 100 ppm, 548 mg/m³
n-Butyl acetate
CAS: 123-86-4, EINECS/ELINCS: 204-658-1, EU-INDEX: 607-025-00-1, Reg-No.: 01-2119485493-29-XXXX
Long-term exposure: 150 ppm, 724 mg/m³
Short-term exposure (15-minute): 200 ppm, 966 mg/m³

Ingredients with occupational exposure limits to be monitored (EU)

Substance / EC LIMIT VALUES
2-Methoxy-1-methylethyl acetate
CAS: 108-65-6, EINECS/ELINCS: 203-603-9, EU-INDEX: 607-195-00-7, Reg-No.: 01-2119475791-29-XXXX
Eight hours: 50 ppm, 275 mg/m³, H
Short-term (15-minute): 100 ppm, 550 mg/m³
n-Butyl acetate
CAS: 123-86-4, EINECS/ELINCS: 204-658-1, EU-INDEX: 607-025-00-1, Reg-No.: 01-2119485493-29-XXXX
Eight hours: 50 ppm, 241 mg/m³
Short-term (15-minute): 150 ppm, 723 mg/m³

DNEL

Substance
n-Butyl acetate, CAS: 123-86-4
Industrial, inhalative (vapor), Long-term - systemic effects: 300 mg/m³.
Industrial, inhalative (vapor), Acute - systemic effects: 600 mg/m³.
Industrial, dermal, Long-term - systemic effects: 11 mg/kg bw/day.
Industrial, dermal, Acute - systemic effects: 11 mg/kg bw/day.
Industrial, inhalative (vapor), Acute - local effects: 600 mg/m³.
Industrial, inhalative (vapor), Long-term - local effects: 300 mg/m³.
general population, inhalative (vapor), Acute - local effects: 300 mg/m³.
general population, inhalative (vapor), Long-term - systemic effects: 35,7 mg/m³.
general population, inhalative (vapor), Long-term - local effects: 35,7 mg/m³.
general population, oral, Acute - systemic effects: 2 mg/kg bw/day.
general population, dermal, Long-term - systemic effects: 6 mg/kg bw/day.
general population, dermal, Acute - systemic effects: 6 mg/kg bw/day.
general population, oral, Long-term - systemic effects: 2 mg/kg bw/day.
general population, inhalative (vapor), Acute - systemic effects: 300 mg/m³.
2-Methoxy-1-methylethyl acetate, CAS: 108-65-6
Industrial, inhalative, Long-term - local effects: 550 mg/m³.
Industrial, inhalative, Long-term - systemic effects: 275 mg/m³.
Industrial, dermal, Long-term - systemic effects: 796 mg/kg bw/day.
general population, inhalative, Long-term - local effects: 33 mg/m³.
general population, inhalative, Long-term - systemic effects: 33 mg/m³.
general population, dermal, Long-term - systemic effects: 320 mg/kg bw/day.

general population, oral, Long-term - systemic effects: 36 mg/kg bw/day.

PNEC

Substance
n-Butyl acetate, CAS: 123-86-4
soil, 0,09 mg/kg.
sediment (seawater), 0,098 mg/kg.
sediment (freshwater), 0,981 mg/kg.
sewage treatment plants (STP), 35,6 mg/l.
seawater, 0,018 mg/l.
freshwater, 0,18 mg/l.
2-Methoxy-1-methylethyl acetate, CAS: 108-65-6
sewage treatment plants (STP), 100 mg/l.
soil, 0,29 mg/kg.
sediment (seawater), 0,329 mg/kg.
sediment (freshwater), 3,29 mg/kg.
seawater, 0,064 mg/L.
freshwater, 0,635 mg/l.

8.2 Exposure controls

Additional advice on system design
Ensure adequate ventilation on workstation.
Measurement methods for taking workplace measurements must meet the performance requirements of DIN EN 482. For example, recommendations are given in the IFA's list of hazardous substances.

Eye protection
Safety glasses. (EN 166:2001)

Hand protection
0,4mm Butyl rubber, >480 min (EN 374-1/-2/-3).
The details concerned are recommendations. Please contact the glove supplier for further information.

Skin protection
Solvent-resistant protective clothing (EN 340)

Other
Avoid contact with eyes and skin.
Do not inhale gases/vapours/aerosols.
Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.
Avoid contact during pregnancy/ while nursing.

Respiratory protection
In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection.
Short term: filter apparatus, filter A. (DIN EN 14387)

Thermal hazards
none

Delimitation and monitoring of the environmental exposition
Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	liquid
Color	colourless
Odor	characteristic
Odour threshold	not determined
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	> 120
Flash point [°C]	44
Flammability (solid, gas) [°C]	not applicable
Lower explosion limit	1,2 - 1,5 Vol.%
Upper explosion limit	7,5 - 10,8 Vol.% not determined
Oxidising properties	no
Vapour pressure/gas pressure [kPa]	not determined
Density [g/ml]	0,92 - 0,96 (20 °C / 68,0 °F)
Bulk density [kg/m³]	not applicable
Solubility in water	insoluble
Partition coefficient [n-octanol/water]	not determined
Viscosity	not applicable
Relative vapour density determined in air	not determined
Evaporation speed	not determined
Melting point [°C]	not determined
Autoignition temperature [°C]	> 300
Decomposition temperature [°C]	not determined

9.2 Other information

none

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

The product is stable under standard conditions.

10.3 Possibility of hazardous reactions

Evolution of flammable mixtures possible in air when heated above flash point and/or during spraying or misting.
Reactions with oxidizing agents.
Uncleaned empty vessels may contain product gases which can form explosive mixtures with air.

10.4 Conditions to avoid

See SECTION 7
Strong heating.

10.5 Incompatible materials

Strong oxidizing agent.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product
ATE-mix, inhalation (vapour), > 20 mg/l 4h.
ATE-mix, dermal, > 2000 mg/kg.
ATE-mix, oral, > 2000 mg/kg.

Substance
n-Butyl acetate, CAS: 123-86-4
LD50, dermal, Rabbit: >14112 mg/kg (OECD 402).
LD50, oral, Rat: 10760 mg/kg (OECD 423).
LC50, inhalative, Rat: 23.4 mg/l (4h) (OECD 403).
2-Methoxy-1-methylethyl acetate, CAS: 108-65-6
LD50, dermal, Rat: > 2000 mg/kg.
LD50, oral, Rat: > 5000 mg/kg.
LC0, inhalative, Rat: > 4345 ppm (6 h).

Serious eye damage/irritation
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Skin corrosion/irritation
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Respiratory or skin sensitisation
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Specific target organ toxicity — single exposure
Vapours may cause drowsiness and dizziness.
Based on the available information, the classification criteria are fulfilled.
Toxicological data of complete product are not available.
Calculation method

Specific target organ toxicity — repeated exposure
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Mutagenicity
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Reproduction toxicity
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Carcinogenicity
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.
Toxicological data of complete product are not available.

Aspiration hazard
Does not contain a relevant substance that meets the classification criteria.
Based on the available information, the classification criteria are not fulfilled.

General remarks

none

SECTION 12: Ecological information

12.1 Toxicity

Substance
n-Butyl acetate, CAS: 123-86-4
LC50, (96h), Pimephales promelas: 18 mg/l (OECD 203).
EC50, (72h), Desmodesmus subspicatus: 647.7 mg/l.
EC50, (48h), Daphnia magna: 44 mg/l.
IC50, Bacteria: 356 mg/l (40 h).
NOEC, Desmodesmus subspicatus: 200 mg/l.
2-Methoxy-1-methylethyl acetate, CAS: 108-65-6
LC50, (96h), Oncorhynchus mykiss: 134 mg/l (OECD 203).
EC50, (72h), Selenastrum capricornutum: > 1000 mg/l (OECD 201).
EC50, (48h), Daphnia magna: > 500 mg/l.
NOEC, (21d), Daphnia magna: ≥ 100 mg/l (OECD 202).
NOEC, Oryzias latipes: 47,5 mg/l (14 d) (OECD 204).
EC10, Bacteria: > 1000 mg/l (0,5 h) (ISO 8192).

12.2 Persistence and degradability

Behaviour in environment compartments	not determined
Behaviour in sewage plant	not determined
Biological degradability	not determined

12.3 Bioaccumulative potential

Accumulation in organisms is not expected.

12.4 Mobility in soil

Spillages may penetrate the soil causing ground water contamination.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. It is not possible to determine a waste code for this product in accordance with the European Waste Catalogue (EWC) since it is only possible to classify it according to how it is used by the customer. The waste code is to be determined within the EU in liaison with the waste-disposal operator.

Product

Dispose of as hazardous waste.
Disposal in an incineration plant in accordance with the regulations of the local authorities.

Waste no. (recommended) 070104*

Contaminated packaging

Uncontaminated packaging may be taken for recycling.
Packaging that cannot be cleaned should be disposed of as for product.

Waste no. (recommended) 150110*

SECTION 14: Transport information

14.1 UN number

Transport by land according to ADR/RID	1993
Inland navigation (ADN)	1993
Marine transport in accordance with IMDG	1993
Air transport in accordance with IATA	1993

14.2 UN proper shipping name

Transport by land according to ADR/RID	Flammable liquid, n.o.s. (2-Methoxy-1-methylethyl acetate, Butyl acetate)
- Classification Code	F1
- Label	
- ADR LQ	5 l
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 3 (D/E)
Inland navigation (ADN)	Flammable liquid, n.o.s. (2-Methoxy-1-methylethyl acetate, Butyl acetate)
- Classification Code	F1
- Label	
Marine transport in accordance with IMDG	Flammable liquid, n.o.s. (2-Methoxy-1-methylethyl acetate, Butyl acetate)
- EMS	F-E, S-E
- Label	
- IMDG LQ	5 l
Air transport in accordance with IATA	Flammable liquid, n.o.s. (2-Methoxy-1-methylethyl acetate, Butyl acetate solution)
- Label	

14.3 Transport hazard class(es)

Transport by land according to ADR/RID	3
Inland navigation (ADN)	3
Marine transport in accordance with IMDG	3
Air transport in accordance with IATA	3

14.4 Packing group

Transport by land according to ADR/RID	III
Inland navigation (ADN)	III
Marine transport in accordance with IMDG	III
Air transport in accordance with IATA	III

14.5 Environmental hazards

Transport by land according to ADR/RID	no
Inland navigation (ADN)	no
Marine transport in accordance with IMDG	no
Air transport in accordance with IATA	no

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

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

not applicable

SECTION 15: Regulatory information

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

EEC-REGULATIONS	2008/98/EC 2000/532/EC); 2010/75/EU; 2004/42/EC; (EC) 648/2004; (EC) 1907/2006 (REACH); (EU) 1272/2008; 75/324/EEC ((EC) 2016/2037); (EU) 2015/830; (EU) 2016/131; (EU) 517/2014
TRANSPORT-REGULATIONS	ADR (2019); IMDG-Code (2019, 39. Amdt.); IATA-DGR (2020)
NATIONAL REGULATIONS (GB):	EH40/2005 Workplace exposure limits (Second edition, published December 2011).
- Observe employment restrictions for people	Observe employment restrictions for mothers-to-be and nursing mothers. Observe employment restrictions for young people.
- VOC (2010/75/CE)	100%

15.2 Chemical safety assessment

not applicable

SECTION 16: Other information

16.1 Hazard statements (SECTION 03)

H335 May cause respiratory irritation.
H360D May damage the unborn child.
H336 May cause drowsiness or dizziness.
H226 Flammable liquid and vapour.

16.2 Abbreviations and acronyms:

ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure
ATE = acute toxicity estimate
CAS = Chemical Abstracts Service
CLP = Classification, Labelling and Packaging
DMEL = Derived Minimum Effect Level
DNEL = Derived No Effect Level
EC50 = Median effective concentration
ECB = European Chemicals Bureau
EEC = European Economic Community
EINECS = European Inventory of Existing Commercial Chemical Substances
EL50 = Median effective loading
ELINCS = European List of Notified Chemical Substances
EmS = Emergency Schedules
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 = Inhibition concentration, 50%
IMDG = International Maritime Code for Dangerous Goods
IUCLID = International Uniform ChemicaL Information Database
LC50 = Lethal concentration, 50%
LD50 = Median lethal dose
LC0 = lethal concentration, 0%
LOAEL = lowest-observed-adverse-effect level
LL50 = Median lethal loading
LQ = Limited Quantities
MARPOL = International Convention for the Prevention of Marine Pollution from Ships
NOAEL = No Observed Adverse Effect Level
NOEC = No Observed Effect Concentration
PBT = Persistent, Bioaccumulative and Toxic substance
PNEC = Predicted No-Effect Concentration
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
STP = Sewage Treatment Plant
TLV®/TWA = Threshold limit value – time-weighted average
TLV®STEL = Threshold limit value – short-time exposure limit
VOC = Volatile Organic Compounds
vPvB = very Persistent and very Bioaccumulative

16.3 Other information

Classification procedure

Flam. Liq. 3: H226 Flammable liquid and vapour. (On basis of test data)
STOT SE 3: H336 May cause drowsiness or dizziness. (Calculation method)

Modified position

SECTION 2 been added: 2-Methoxy-1-methylethyl acetate

SECTION 2 been added: P312 Call a POISON CENTER / doctor if you feel unwell.

SECTION 2 been added: It is essential for pregnant women to avoid inhaling the product and not to let it come in contact with the skin.

SECTION 2 been added: H336 May cause drowsiness or dizziness.

SECTION 2 been added: exclamation mark

SECTION 2 been added: STOT SE 3

SECTION 4 been added: Drowsiness

SECTION 8 been added: Avoid contact during pregnancy/ while nursing.

SECTION 8 been added: In the event of occupational exposure limits being exceeded or of inadequate ventilation: wear appropriate respiratory protection.

SECTION 8 deleted: Respiratory protection mask in the event of high concentrations.

SECTION 16 been added: Calculation method