Safety data sheet
according to 1907/2006/EC, Article 31

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

· 1.1 Product identifier

· Trade name: MoS2 Grease

· Article number: 636101301
· 1.2 Relevant identified uses of the substance or mixture and uses advised against
· Application of the substance / the mixture Lubricant

· 1.3 Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
A.M.P.E.R.E. SYSTEM
3 Rue Antoine Balard - P.A. du Vert Galant
95310 Saint-Ouen-l'Aumône - France
Tel: +33 1 34 64 72 72
Fax: +33 1 30 37 55 17
E-mail: fds@amperesystem.com
· 1.4 Emergency telephone number: 0344 892 0111

*
SECTION 2: Hazards identification

· 2.1 Classification of the substance or mixture
· Classification according to Regulation (EC) No 1272/2008

GHS02 flame

Aerosol 1	H222-H229	Extremely flammable aerosol. Pressurised container: May burst if heated.

GHS07

STOT SE 3	H336	May cause drowsiness or dizziness.
Asp. Tox. 1	H304	May be fatal if swallowed and enters airways.
Aquatic Chronic 3	H412	Harmful to aquatic life with long lasting effects.

· 2.2 Label elements
· Labelling according to Regulation (EC) No 1272/2008
The product is classified and labelled according to the CLP regulation.
· Hazard pictograms

GHS02 GHS07

· Signal word Danger

· Hazard-determining components of labelling:
Pentane
Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, < 2% aromatics
· Hazard statements
H222-H229 Extremely flammable aerosol. Pressurised container: May burst if heated.
H336 May cause drowsiness or dizziness.
H412 Harmful to aquatic life with long lasting effects.
· Precautionary statements
P101 If medical advice is needed, have product container or label at hand.
P102 Keep out of reach of children.

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P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P260 Do not breathe spray.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves / eye protection.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P403 Store in a well-ventilated place.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· Additional information:
EUH066 Repeated exposure may cause skin dryness or cracking.
Buildup of explosive mixtures possible without sufficient ventilation.

· 2.3 Other hazards
· Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.

*
SECTION 3: Composition/information on ingredients

· 3.2 Mixtures
· Description: Active substance with propellant

· Dangerous components:

CAS: 106-97-8 EINECS: 203-448-7 Reg.nr.: 01-2119474691-32	butane (containing < 0.1% butadiene (203-450-8)) Flam. Gas 1, H220; Press. Gas (Comp.), H280	25-<50%
CAS: 109-66-0 EINECS: 203-692-4 Reg.nr.: 01-2119459286-30	Pentane Flam. Liq. 1, H224; Asp. Tox. 1, H304; Aquatic Chronic 2, H411; STOT SE 3, H336	10-<25%
EC number: 927-241-2 Reg.nr.: 01-2119471843-32	Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, < 2% aromatics Asp. Tox. 1, H304; STOT SE 3, H336; Aquatic Chronic 3, H412	10-<25%
CAS: 74-98-6 EINECS: 200-827-9 Reg.nr.: 01-2119486944-21	propane Flam. Gas 1, H220; Press. Gas (Comp.), H280	10-<25%
CAS: 75-28-5 EINECS: 200-857-2 Reg.nr.: 01-2119485395-27	isobutane (containing < 0,1 % butadiene (203-450-8)) Flam. Gas 1, H220; Press. Gas (Comp.), H280	2.5-<10%

-
· Additional information:

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SECTION 4: First aid measures

· 4.1 Description of first aid measures
· After inhalation: Supply fresh air; consult doctor in case of complaints.
· After skin contact: Generally the product does not irritate the skin.
· After eye contact: Rinse opened eye for several minutes under running water.
· After swallowing: Do not induce vomiting; call for medical help immediately.
· 4.2 Most important symptoms and effects, both acute and delayed
No further relevant information available.

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· 4.3 Indication of any immediate medical attention and special treatment needed
No further relevant information available.

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SECTION 5: Firefighting measures

· 5.1 Extinguishing media
· Suitable extinguishing agents:
Water haze
Fire-extinguishing powder
Carbon dioxide
Alcohol resistant foam
· For safety reasons unsuitable extinguishing agents: Water with full jet
· 5.2 Special hazards arising from the substance or mixture No further relevant information available.
· 5.3 Advice for firefighters
· Protective equipment: Mount respiratory protective device.

*
SECTION 6: Accidental release measures

· 6.1 Personal precautions, protective equipment and emergency procedures
Wear protective equipment. Keep unprotected persons away.
· 6.2 Environmental precautions:
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· 6.3 Methods and material for containment and cleaning up:
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
· 6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

*
SECTION 7: Handling and storage

· 7.1 Precautions for safe handling Ensure good ventilation/exhaustion at the workplace.
· Information about fire - and explosion protection:
Do not spray onto a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Pressurised container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.

· 7.2 Conditions for safe storage, including any incompatibilities
· Storage:
· Requirements to be met by storerooms and receptacles:
Store in a cool location.
Observe official regulations on storing packagings with pressurised containers.
· Information about storage in one common storage facility:
Observe official regulations on storing packagings with pressurised containers.
· Further information about storage conditions:
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
· 7.3 Specific end use(s) No further relevant information available.

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SECTION 8: Exposure controls/personal protection

· Additional information about design of technical facilities: No further data; see item 7.

· 8.1 Control parameters

· Ingredients with limit values that require monitoring at the workplace:		
106-97-8 butane (containing < 0.1% butadiene (203-450-8))		
WEL	Short-term value: 1810 mg/m³, 750 ppm Long-term value: 1450 mg/m³, 600 ppm Carc (if more than 0.1% of buta-1.3-diene)	
109-66-0 Pentane		
WEL	Long-term value: 1800 mg/m³, 600 ppm	
74-98-6 propane		
WEL	Long-term value: 1800 mg/m³	
75-28-5 isobutane (containing < 0,1 % butadiene (203-450-8))		
WEL	Short-term value: 2400 mg/m³ Long-term value: 1900 mg/m³	
· DNELs		
109-66-0 Pentane		
Oral	DNEL Longterm-systemic	214 mg/kg bw/day (Consumer)
Dermal	DNEL Longterm-systemic	214 mg/kg bw/day (Consumer)
		432 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm-systemic	643 mg/m3 (Consumer)
		3000 mg/m3 (Worker)
Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, < 2% aromatics		
Oral	DNEL Longterm-systemic	300 mg/kg bw/day (Consumer)
Dermal	DNEL Longterm-systemic	300 mg/kg bw/day (Consumer)
		300 mg/kg bw/day (Worker)
Inhalative	DNEL Longterm-systemic	900 mg/m3 (Consumer)
		1500 mg/m3 (Worker)

· Additional information: The lists valid during the making were used as basis.

· 8.2 Exposure controls
· Personal protective equipment:
· General protective and hygienic measures: Wash hands before breaks and at the end of work.
· Respiratory protection:
Filter AX/P2
Use suitable respiratory protective device in case of insufficient ventilation.
Filter A2/P2
· Protection of hands:
Wear gloves for the protection against chemicals according to EN 374

Protective gloves

Solvent resistant gloves
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
Nitrile rubber, NBR

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Recommended thickness of the material: ≥ 0.5 mm

· Penetration time of glove material
For continuous contact we recommend gloves with breakthrough time of at least 240 minutes, with the preference given to a breakthrough time greater than 480 minutes. For short-term or splash guard we recommend the same. We are aware that suitable gloves that offer this level of protection may not be available. In that case, a shorter breakthrough time are acceptable as long as the procedures governing maintenance and timely replacement are followed. The thickness of the gloves is not a good measure of the resistance of the gloves against a chemical substance, because this depends on the exact composition of the material from which the gloves are made.
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.

· Eye protection:
Safety glasses

Tightly sealed goggles

· Body protection: Use protective suit. (EN-13034/6)

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SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Aerosol
Colour:	According to product specification
· Odour:	Characteristic
· Odour threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	-44.5 °C
· Flash point:	-97 °C
· Flammability (solid, gas):	Not applicable.
· Auto-ignition temperature:	Product is not selfigniting.
· Explosive properties:	Product is not explosive. However, formation of explosive air/ vapour mixtures are possible.
· Explosion limits:	
Lower:	1.4 Vol %
Upper:	10.9 Vol %
· Vapour pressure at 20 °C:	3100 hPa
· Density at 20 °C:	0.661 g/cm³
· Relative density	Not determined.
· Vapour density	Not determined.
· Evaporation rate	Not applicable.
· Solubility in / Miscibility with water:	Not miscible or difficult to mix.
· Partition coefficient: n-octanol/water:	Not determined.
· Viscosity:	
Dynamic:	Not determined

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Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	76.5 %
Solids content:	0.1 %

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SECTION 10: Stability and reactivity

· 10.1 Reactivity No further relevant information available.
· 10.2 Chemical stability
· Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
· 10.3 Possibility of hazardous reactions No dangerous reactions known.
· 10.4 Conditions to avoid No further relevant information available.
· 10.5 Incompatible materials: No further relevant information available.
· 10.6 Hazardous decomposition products: No dangerous decomposition products known.

*
SECTION 11: Toxicological information

· 11.1 Information on toxicological effects
· Acute toxicity Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:		
Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, < 2% aromatics		
Oral	LD50	>5000 mg/kg (rat)
Dermal	LD50	>5000 mg/kg (rabbit)
Inhalative	LC50/4 h	4951 mg/l (rat)

· Primary irritant effect:
· 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.
· CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):
· 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
May cause drowsiness or dizziness.
· STOT-repeated exposure Based on available data, the classification criteria are not met.
· Aspiration hazard
May be fatal if swallowed and enters airways.

*
SECTION 12: Ecological information

· 12.1 Toxicity

· Aquatic toxicity:	
109-66-0 Pentane	
NOEC (72h)	7.51 mg/l (Pseudokirchneriella subcapitata)
EC50 (72h)	10.7 mg/l (Pseudokirchneriella subcapitata)
LC50/96h	4.26 mg/l (Oncorhynchus mykiss (96h))
EC50/48h	2.7 mg/l (Daphnia magna)
Hydrocarbons, C9-C10, n-alkanes, isoalkanes, cyclics, < 2% aromatics	
NOEC	0.1-1 mg/l (Undefind)

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EC50 (72h) >	100 mg/l (algae)
LC50/96h	10-100 mg/l (Fish)
EC50/48h	10-100 mg/l (Daphnia magna)

· 12.2 Persistence and degradability No further relevant information available.
· 12.3 Bioaccumulative potential No further relevant information available.
· 12.4 Mobility in soil No further relevant information available.
· Ecotoxical effects:
· Remark: Harmful to fish
· Additional ecological information:
· General notes:
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms
· 12.5 Results of PBT and vPvB assessment
· PBT: Not applicable.
· vPvB: Not applicable.
· 12.6 Other adverse effects No further relevant information available.

SECTION 13: Disposal considerations

· 13.1 Waste treatment methods
· Recommendation
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· European waste catalogue	
HP3	Flammable
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP14	Ecotoxic

· Uncleaned packaging:
· Recommendation: Disposal must be made according to official regulations.

*

SECTION 14: Transport information

· 14.1 UN-Number
· ADR, ADN, IMDG, IATA UN1950

· 14.2 UN proper shipping name
· ADR, ADN UN1950 AEROSOLS
· IMDG AEROSOLS
· IATA AEROSOLS, flammable

· 14.3 Transport hazard class(es)

· ADR

· Class 2 5F Gases.
· Label 2.1

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· ADN	
· ADN/R Class:	2 5F
· IMDG, IATA	
	
· Class	2.1
· Label	2.1
· 14.4 Packing group	
· ADR, IMDG, IATA	Void
· 14.5 Environmental hazards:	
· Marine pollutant:	No
· 14.6 Special precautions for user	Warning: Gases.
· Danger code (Kemler):	-
· EMS Number:	F-D,S-U
· Stowage Code	SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters.
· Segregation Code	SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.
· 14.7 Transport in bulk according to Annex II of Marpol and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· Transport category	2
· Tunnel restriction code	D
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E0 Not permitted as Excepted Quantity
· UN "Model Regulation":	UN 1950 AEROSOLS, 2.1

*

SECTION 15: Regulatory information

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

· Directive 2012/18/EU
· Named dangerous substances - ANNEX I None of the ingredients is listed.
· Seveso category P3a FLAMMABLE AEROSOLS
· Qualifying quantity (tonnes) for the application of lower-tier requirements 150 t

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· Qualifying quantity (tonnes) for the application of upper-tier requirements 500 t
· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

· National regulations:

Class	Share in %
NK	75-<100

· VOC-CH 76.50 %
· VOC-EU 505.7 g/l
· Danish MAL Code 5-3
· 15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

*
SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases
H220 Extremely flammable gas.
H224 Extremely flammable liquid and vapour.
H280 Contains gas under pressure; may explode if heated.
H304 May be fatal if swallowed and enters airways.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.
H412 Harmful to aquatic life with long lasting effects.
· Abbreviations and acronyms:
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organisation
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
MAL-Code: Måleteknisk Arbejdshygiejnisk Luftbehov (Regulation for the labeling concerning inhalation hazards, Denmark)
DNEL: Derived No-Effect Level (REACH)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Gas 1: Flammable gases – Category 1
Aerosol 1: Aerosols – Category 1
Press. Gas (Comp.): Gases under pressure – Compressed gas
Flam. Liq. 1: Flammable liquids – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
Asp. Tox. 1: Aspiration hazard – Category 1
Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
· * Data compared to the previous version altered. *