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

1.1. Product identifier

markSolid 114.M9AS

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

Use of the substance/mixture

Firing, coating for metals

1.3. Details of the supplier of the safety data sheet

Company name:	Pigmentum GmbH	
Street:	Schillerstr. 35	
Place:	D-90547 Stein	
Telephone:	+49 (0) 911-2126-0	Telefax: +49 (0) 911-21260-10
e-mail:	office@markSolid.de	
Responsible Department:	Responsible for the safety data sheet: sds@gbk-ingelheim.de	

1.4. Emergency telephone number: Emergency telephone :+49 (0) 6132 / 84463 (GBK GmbH, Ingelheim)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Indications of danger: F+ - Extremely flammable, Xn - Harmful, Xi - Irritant
R phrases:
Extremely flammable.
Irritating to eyes.
Limited evidence of a carcinogenic effect.
Vapours may cause drowsiness and dizziness.

GHS classification

Hazard categories:
Aerosol: Aerosol 1
Serious eye damage/eye irritation: Eye Irrit. 2
Carcinogenicity: Carc. 2
Specific target organ toxicity - single exposure: STOT SE 3
Hazard Statements:
Extremely flammable aerosol.
Pressurised container: May burst if heated.
Causes serious eye irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.

2.2. Label elements

Hazardous components which must be listed on the label

acetone; propan-2-one; propanone
1-methoxy-2-propanol; monopropylene glycol methyl ether
molybdenum trioxide

Signal word: Danger

Pictograms: GHS02-GHS07-GHS08

Hazard statements

H222	Extremely flammable aerosol.
H229	Pressurised container: May burst if heated.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Precautionary statements

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.
P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/attention.
P410+P412	Protect from sunlight. Do no expose to temperatures exceeding 50 °C/122 °F.
P501	Dispose of contents/container to in accordance with local and national regulations.

2.3. Other hazards

Inhalation of vapours in high concentration can cause narcotic effects .
Intensive spraying of parts of the skin can result in frostbite of these parts.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

EC No	Chemical name	Quantity
CAS No	Classification	
Index No	GHS classification	
REACH No		
200-578-6	ethanol, ethyl alcohol	<40 %
64-17-5	F - Highly flammable R11	
603-002-00-5	Flam. Liq. 2; H225	
204-065-8	dimethyl ether	< 25 %
115-10-6	F+ - Extremely flammable R12	
603-019-00-8	Flam. Gas 1; H220	
200-662-2	acetone; propan-2-one; propanone	15 - < 20 %
67-64-1	F - Highly flammable, Xi - Irritant R11-36-66-67	
606-001-00-8	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336	
203-539-1	1-methoxy-2-propanol; monopropylene glycol methyl ether	10 - < 15 %
107-98-2	R10-67	
603-064-00-3	Flam. Liq. 3, STOT SE 3; H226 H336	
215-204-7	molybdenum trioxide	< 10 %
1313-27-5	Carc. Cat. 3, Xi - Irritant R40-36/37	
042-001-00-9	Carc. 2, Eye Irrit. 2, STOT SE 3; H351 H319 H335	
215-535-7	xylene	1 - < 5 %
1330-20-7	Xn - Harmful, Xi - Irritant R10-20/21-38	
601-022-00-9	Flam. Liq. 3, Acute Tox. 4, Acute Tox. 4, Skin Irrit. 2; H226 H332 H312 H315	

Full text of R and H phrases: see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Remove contaminated soaked clothing immediately.
Take away from danger area and lay down affected person.
Intensive spraying of parts of the skin can result in frostbite of these parts.

After inhalation

Move to fresh air in case of accidental inhalation of vapours.
Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Inhalation of vapours in high concentration can cause narcotic effects.
If you feel unwell, seek medical advice.

After contact with skin

Wash off with soap and plenty of water.
Consult a doctor if skin irritation persists.

After contact with eyes

If eye irritation persists, consult a specialist.
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

After ingestion

Do not induce vomiting.
Summon a doctor immediately.

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

Limited evidence of a carcinogenic effect.

Vapours may cause drowsiness and dizziness

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

Treat symptoms.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam, carbon dioxide (CO2), dry chemical, water-spray.

Unsuitable extinguishing media

Full water jet.

5.2. Special hazards arising from the substance or mixture

Fire may produce:

Carbon monoxide and carbon dioxide

5.3. Advice for firefighters

Use breathing apparatus with independent air supply.

Additional information

Vapours are heavier than air and spread along ground.

The vapour/air mixture is explosive, even in empty, uncleaned receptacles.

Heating will cause pressure rise with risk of bursting.

Cool containers at risk with water spray jet.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

In case of vapour formation use respirator.

Fire or intense heat may cause violent rupture of packages.

Ensure adequate ventilation.

Keep away sources of ignition.

6.2. Environmental precautions

Do not discharge into the drains/surface waters/ground water.

Do not discharge into the subsoil/soil.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder).

Shovel into suitable container for disposal.

6.4. Reference to other sections

Information for disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Provide sufficient air exchange and/or exhaust in work rooms. ..

Do not breathe vapours or spray mist. Avoid contact with the skin and the eyes.

Advice on protection against fire and explosion

Do not spray on a naked flame or any other incandescent material.

Heating will cause pressure rise with risk of bursting.

Do not smoke.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep containers tightly closed in a cool, well-ventilated place.
Storage rooms under 300th TRG

Advice on storage compatibility

Incompatible with oxidizing agents.

Further information on storage conditions

Keep away from food, drink and animal feeding stuffs.

7.3. Specific end use(s)

Firing, coating for metals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
107-98-2	1-Methoxypropan-2-ol	100	375		TWA (8 h)	WEL
		150	560		STEL (15 min)	WEL
67-64-1	Acetone	500	1210		TWA (8 h)	WEL
		1500	3620		STEL (15 min)	WEL
115-10-6	Dimethyl ether	400	766		TWA (8 h)	WEL
		500	958		STEL (15 min)	WEL
64-17-5	Ethanol	1000	1920		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL
1330-20-7	Xylene: mixed isomers	50	220		TWA (8 h)	WEL
		100	441		STEL (15 min)	WEL

Biological Monitoring Guidance Values (EH40)

CAS No	Substance	Parameter	Value	Test material	Sampling time
1330-20-7	Xylene, o-, m-, p- or mixed isomers	methyl hippuric acid	650 mmol/mol	urine	Post shift

8.2. Exposure controls

Appropriate engineering controls

Provide sufficient air exchange and/or exhaust in work rooms.

Protective and hygiene measures

Wash hands before breaks and immediately after handling the product.
When using, do not eat, drink or smoke.
Avoid contact with eyes and skin.

Eye/face protection

Safety goggles with side protection (EN 166).

Hand protection

Chemical-resistant gloves (EN 374).
Follow the recommendations of the glove manufacturer for breakthrough properties especially for workplace conditions involving mechanical stress and contact duration.

Skin protection

Long sleeved clothing (EN 368).

Respiratory protection

In case of insufficient ventilation wear suitable respiratory equipment (gas filter type AX) (EN 141).

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Aerosol
Colour:	Light grey
Odour:	characteristic

	Test method
pH-Value:	n.a.

Changes in the physical state

Initial boiling point and boiling range:	n.a.
Lower explosion limits:	2,1 vol. %
Upper explosion limits:	9,4 vol. %
Explosive properties	In use formation of flammable/explosive vapour-air mixtures possible.

9.2. Other information

No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

No data available.

10.3. Possibility of hazardous reactions

No data available.

10.4. Conditions to avoid

Fire or intense heat may cause violent rupture of packages.

10.5. Incompatible materials

Strong oxidizing agents

10.6. Hazardous decomposition products

Carbon monoxide and carbon dioxide.

Further information

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

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

Acute toxicity

CAS No	Chemical name				
	Exposure routes	Method	Dose	Species	Source
64-17-5	ethanol, ethyl alcohol				
	oral	LD50	6200 mg/kg	Rat	IUCLID
	inhalative (4 h) vapour	LC50	95,6 mg/l	Rat	RTECS
67-64-1	acetone; propan-2-one; propanone				
	oral	LD50	5800 mg/kg	Ratte	RTECS
	dermal	LD50 mg/kg	20000	Kaninchen	IUCLID
	inhalative (4 h) vapour	LC50	76 mg/l	Ratte	
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether				
	oral	LD50 mg/kg	> 5000	Rat	IUCLID
	dermal	LD50 mg/kg	11000	rabbit	
	inhalative vapour	LC50	54,6 mg/l	Rat	
1313-27-5	molybdenum trioxide				
	oral	LD50	2690 mg/kg	Rat	GESTIS
	inhalative (4 h) aerosol	LC50 mg/l	> 5,840	Rat	GESTIS
1330-20-7	xylene				
	dermal	ATE	1100 mg/kg		
	inhalative vapour	ATE	11 mg/l		
	inhalative aerosol	ATE	1,5 mg/l		

Irritation and corrosivity

Causes serious eye irritation.

Sensitising effects

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

STOT-single exposure

May cause drowsiness or dizziness. (acetone; propan-2-one; propanone), (1-methoxy-2-propanol; monopropylene glycol methyl ether)

Severe effects after repeated or prolonged exposure

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

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (molybdenum trioxide)
Limited evidence of a carcinogenic effect.

Aspiration hazard

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

Practical experience

Observations relevant to classification

Inhalation of high vapour concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting.
Inhalation of vapours in high concentration can cause narcotic effects.
Classification in compliance with the assessment procedure specified in the EC guidelines 1999/45/EC.

SECTION 12: Ecological information

12.1. Toxicity

No data available.

CAS No	Chemical name					
	Aquatic toxicity	Method	Dose	[h] | [d]	Species	Source
64-17-5	ethanol, ethyl alcohol					
	Acute fish toxicity	LC50	8140 mg/l	96 h	Golden orfe	
	Acute crustacea toxicity	EC50 mg/l	9268 - 14221	48 h	Daphnia magna	IUCLID
67-64-1	acetone; propan-2-one; propanone					
	Acute fish toxicity	LC50	5540 mg/l	96 h	Onchorhynchus mykiss	
	Acute crustacea toxicity	EC50	6100 mg/l	48 h	Daphnia magna	
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether					
	Acute fish toxicity	LC50 mg/l	4600 - 10000	96 h	Leuciscus idus	IUCLID
	Acute algae toxicity	ErC50	> 1000 mg/l	72 h	Selenastrum capricornutum	
	Acute crustacea toxicity	EC50	> 500 mg/l	48 h	Daphnia magna	IUCLID
1313-27-5	molybdenum trioxide					
	Acute fish toxicity	LC50	130 mg/l	96 h	Onchorhynchus mykiss	
	Acute algae toxicity	ErC50	> 100 mg/l	72 h	Algae	
	Acute crustacea toxicity	EC50	150 mg/l	48 h	Daphnia magna	

12.2. Persistence and degradability

Not determined

12.3. Bioaccumulative potential

Not determined

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
64-17-5	ethanol, ethyl alcohol	- 0,31
115-10-6	dimethyl ether	0,1
67-64-1	acetone; propan-2-one; propanone	-0,24
107-98-2	1-methoxy-2-propanol; monopropylene glycol methyl ether	-0,437

12.4. Mobility in soil

Not determined

12.5. Results of PBT and vPvB assessment

Not determined

12.6. Other adverse effects

Low hazard to waters.

Further information

Do not flush into surface water or sanitary sewer system.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Where possible recycling is preferred to disposal.
Can be incinerated, when in compliance with local regulations.

Waste disposal number of waste from residues/unused products

140603 WASTE ORGANIC SOLVENTS, REFRIGERANTS AND PROPELLANTS (except 07 and 08); waste organic solvents, refrigerants and foam/aerosol propellants; other solvents and solvent mixtures
Classified as hazardous waste.

Contaminated packaging

Offer empty spray cans to an established disposal company.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number:	UN1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
Hazard label:	2.1

Classification code:	5F
Limited quantity:	1 L
Transport category:	2
Tunnel restriction code:	D

Inland waterways transport (ADN)

14.1. UN number:	UN1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
Hazard label:	2.1

Classification code:	5F
Limited quantity:	1 L

Marine transport (IMDG)

14.1. UN number:	UN1950
14.2. UN proper shipping name:	AEROSOLS
14.3. Transport hazard class(es):	2
14.4. Packing group:	-
Hazard label:	2.1

Limited quantity:	See SP277
EmS:	F-D, S-U

Air transport (ICAO)

14.1. UN number:	UN1950
14.2. UN proper shipping name:	AEROSOLS, flammable
14.3. Transport hazard class(es):	2

Hazard label: 2.1

Limited quantity Passenger: 30 kg G

IATA-packing instructions - Passenger:	203
IATA-max. quantity - Passenger:	75 kg
IATA-packing instructions - Cargo:	203
IATA-max. quantity - Cargo:	150 kg

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

Handle in accordance with good industrial hygiene and safety practice.

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

The transport takes place only in approved and appropriate packaging.

SECTION 15: Regulatory information

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

National regulatory information

Employment restrictions: Observe employment restrictions for young people. Observe employment restrictions for child bearing mothers and nursing.

Water contaminating class (D): 1 - slightly water contaminating

Additional information

The substance resp. all components are in:

TSCA: listed
EINECS/ELINCS: listed
DSL: listed
AICS: listed
ENCS/MITI: listed
PICCS (PH): listed
KECI (KR): listed
HSNO listed
IECS listed

SECTION 16: Other information

Changes

Changes in chapter: 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
IMDG = International Maritime Code for Dangerous Goods
IATA/ICAO = International Air Transport Association / International Civil Aviation Organization
MARPOL = International Convention for the Prevention of Pollution from Ships

IBC = Code International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
REACH = Registration, Evaluation, Authorization and Restriction of Chemicals
CAS = Chemical Abstract Service
EN = European norm
ISO = International Organization for Standardization
DIN = Deutsche Industrie Norm
PBT = Persistent Bioaccumulative and Toxic

LD = Lethal dose
LC = Lethal concentration
EC = Effect concentration
IC = Median immobilisation concentration or median inhibitory concentration

Full text of R phrases referred to under Sections 2 and 3

10	Flammable.
11	Highly flammable.
12	Extremely flammable.
20/21	Harmful by inhalation and in contact with skin.
36	Irritating to eyes.
36/37	Irritating to eyes and respiratory system.
38	Irritating to skin.
40	Limited evidence of a carcinogenic effect.
66	Repeated exposure may cause skin dryness or cracking.
67	Vapours may cause drowsiness and dizziness.

Full text of H statements referred to under Sections 2 and 3

H220	Extremely flammable gas.
H222	Extremely flammable aerosol.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H229	Pressurised container: May burst if heated.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

Further Information

Data of items 4 to 8, as well as 10 to 12, do partly not refer to the use and the regular employing of the product (in this sense consult information on use and on product), but to liberation of major amounts in case of accidents and irregularities.
The information describes exclusively the safety requirements for the product(s) and is based on the present level of our knowledge.
The delivery specifications are contained in the corresponding product sheet.
This data does not constitute a guarantee for the characteristics of the product(s) as defined by the legal warranty regulations.
(n.a. = not applicable; n.d. = not determined)

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)