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LAMPIRAN

Lampiran 1. Hasil Wawancara *Stakeholders* 1

Narasumber : Pak Ilyas

Jabatan :Kasie Desain

No.	Pertanyaan	Jawaban
1	Tugas desain mencakup apa saja?	Tugas desain adalah menangani seluruh gambar teknik yang nantinya akan diberikan kepada departemen lain untuk dikerjakan, Ada juga mengurus tampilan mobil, mulai dari desain stiker dan warna yang digunakan, mendesain buku panduan, dan mengurus material yang digunakan.
2	Apakah ada komplain belakangan ini dan apabila ada terkait hal apa?	Terdapat komplain yang cukup penting untuk ditangani sebenarnya, yaitu terkait permasalahan tangki pada mobil pemadam yang bocor setelah penggunaan 1-2 tahun. Kebocoran tersebut tidak hanya terjadi di tangki foam, tetapi di tangki air juga. Titik kebocoran terjadi pada bagian bawah tangki.
3	Solusi yang telah dilakukan saat ini apa?	Karena keterbatasan waktu, kami hanya mengganti supplier bahan baku ke supplier lain yang memiliki kualitas lebih baik. Material yang digunakan adalah plat SS 316L karena merupakan material yang paling baik untuk digunakan.
4	Sudah berapa komplain terkait kebocoran tersebut?	Dalam kurun waktu 1 tahun terakhir terdapat sekitar 4 komplain.
5	Kenapa masalah ini cukup penting karena diketahui dalam setahun pesanan perusahaan dapat mencapai 100 pesanan?	Masalah ini penting karena material yang digunakan untuk tangki hanya menggunakan 1 material saja, dan kebanyakan pesanan juga perlu tangki, karena misi perusahaan yang mengutamakan customer supaya customer tetap percaya terhadap kualitas perusahaan juga.

Lampiran 2. Hasil Wawancara *Stakeholders* 2

Narasumber : Pak Sugiyanto

Jabatan :Kasie Quality Control

No.	Pertanyaan	Jawaban
1	Tugas QC mencakup apa saja?	Tugas QC mengecek keseluruhan bahan yang digunakan dari pengecekan material sebelum digunakan, sampai produk jadi. Sebelum dikirim ke customer dilakukan pengecekan seluruh fungsi kendaraan tidak terdapat masalah dan dianggap lulus tes. QC juga bertugas untuk berkomunikasi ke customer karena yang mengerti proses produk dari awal sampai akhir.
2	Apakah terdapat masalah dalam pengecekan kualitas dari tangki?	Biasanya pengecekan kualitas tangki hanya diuji dari hasil pengelasan berdasarkan penglihatan dan uji kebocoran dengan mengisi tangki penuh dengan air dan didiamkan selama sekitar 4 jam.
3	Apa yang dilakukan ketika mendapat komplain dari customer?	Biasanya meminta rincian permasalahan dan selanjutnya dilakukan penjelasan selama proses produksi. Apabila dapat diperbaiki maka unit akan dikirim kembali ke pabrik untuk dilakukan perbaikan selama masih masa garansi.

Lampiran 3. Hasil Wawancara *Stakeholders* 3

Narasumber : Pak Agung

Jabatan :Kasie *Piping & Tank*

No.	Pertanyaan	Jawaban
1	Tugas departemen piping & tank mencakup apa saja?	Tugas dari departemen kami melaksanakan pembuatan pipa dan tangki berdasarkan gambar teknik atau <i>job order</i> yang diberikan. Pembuatan ini dari bahan awal hingga <i>assembly</i> untuk siap dipasangkan ke mobil pemadam.
2	Proses pembuatan tangki bagaimana?	Proses pembuatannya pastinya meminta ke gudang untuk material apa saja yang dibutuhkan pada hari itu agar dapat dicarikan dan disiapkan terlebih dahulu. Selanjutnya pada pembuatan tangki dilakukang pemotongan pola menggunakan mesin CNC laser agar potongan presisi. Setelah itu, pola tadi apabila berbentuk siku-siku perlu di bending di mesin bending dengan menandai terlebih dahulu sudut yang akan dibending. Lalu, semua part akan di gabung menggunakan mesin las manual dengan teknik spot welding. Setelah terhubung keseluruhan, maka dilakukan pengelasan agar tidak terdapat lubang di setiap sudut tangki. Terakhir, melakukan tes uji kebocoran dengan mengisi penuh tangki dengan air.
3	Apakah ada kesulitan selama proses pembuatan tangki?	Karena kebanyakan proses sudah pakai mesin canggih jadi hanya perlu pengaturan awal saja pada mesin, tapi setelah setting sudah dilakukan, maka hanya perlu menunggu mesin mengerjakan dan mengamati apakah terjadi error atau tidak selama prosesnya.

Lampiran 4. MSDS *Cleaner*



Safety Data Sheet

SKC-S

Prepared according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Date of Issue: 06/10/2016 Revision date: 03/05/2025 Supersedes: 08/07/2019 Version: 3.3

SECTION 1: IDENTIFICATION

1.1. IDENTIFICATION

Product form : Substance
Substance name : SKC-S

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Recommended use : Non-Destructive Testing.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Manufacturer
Magnaflux
155 Harlem Ave.
Glenview, IL 60025 - USA
T 847-657-5300

Distributor

1.4. EMERGENCY TELEPHONE NUMBER

Emergency number : CHEMTREC 800-424-9300

SECTION 2: HAZARD IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS classification

Flam. Liq. 2
Skin Irrit. 2
STOT SE 3
Asp. Tox. 1

2.2. LABEL ELEMENTS

GHS labelling

Hazard pictograms (GHS)



Signal word (GHS)

: Danger

Hazard statements (GHS)

: Highly flammable liquid and vapour. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness.

Precautionary statements (GHS)

: Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Avoid breathing dust/fume/gas/mist/vapours/spray. Wash hands, forearms and face thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. OTHER HAZARDS

No additional information available

2.4. UNKNOWN ACUTE TOXICITY

Not applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCES

Name	Product identifier	%
Naphtha, petroleum, hydrotreated light	(CAS-No.) 64742-49-0	100

3.2. MIXTURES

Not applicable

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

First-aid measures after inhalation	: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a POISON CENTER or doctor/physician if you feel unwell.
First-aid measures after skin contact	: If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash clothing before re-using. If skin irritation occurs: Get medical advice/attention.
First-aid measures after eye contact	: IF IN EYES: 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.
First-aid measures after ingestion	: IF SWALLOWED: immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: Causes skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
Symptoms/effects after ingestion	: May be fatal if swallowed and enters airways. This product may be aspirated into the lungs and cause chemical pneumonitis. May cause stomach distress, nausea or vomiting.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media	: Dry chemical. Carbon dioxide. Water spray. Water fog. Foam.
Unsuitable extinguishing media	: Do not use water jet.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire hazard	: Highly flammable liquid and vapour. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back. Products of combustion may include, and are not limited to: oxides of carbon.
Explosion hazard	: May form flammable/explosive vapour-air mixture. Intense heat may cause container to burst.
Reactivity	: No dangerous reaction known under conditions of normal use.

5.3. ADVICE FOR FIREFIGHTERS

Protection during firefighting	: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Cool closed containers exposed to fire with water spray.
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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General measures	: Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Remove ignition sources. Use special care to avoid static electric charges. Use only non-sparking tools. Avoid breathing vapour or mist.
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6.1.1. FOR NON-EMERGENCY PERSONNEL

No additional information available

6.1.2. FOR EMERGENCY RESPONDERS

No additional information available

6.2. ENVIRONMENTAL PRECAUTIONS

Do not allow to enter into surface water or drains. Prevent entry to sewers and public waters.



6.3. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

For containment : Stop leak without risks if possible. Dilute with water. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not flush into surface water or sewer system. Wear recommended personal protective equipment. Use explosion-proof equipment.

Methods for cleaning up : Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

6.4. REFERENCE TO OTHER SECTIONS

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.

Precautions for safe handling : Keep away from sources of ignition - No smoking. Use only non-sparking tools. Use only explosion-proof equipment. Take precautionary measures against static discharge. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Use only outdoors or in a well-ventilated area.

Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical measures : Proper grounding procedures to avoid static electricity should be followed.

Storage conditions : Keep locked up and out of reach of children. Keep container tightly closed. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatibles. Do not expose to temperatures exceeding 50 °C/ 122 °F.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

Naphtha, petroleum, hydrotreated light (64742-49-0)		
ACGIH	ACGIH TWA	247 ppm/8h

8.2. EXPOSURE CONTROLS

Appropriate engineering controls : Ensure good ventilation of the work station. Use explosion-proof ventilation equipment.

Hand protection : Wear suitable gloves resistant to chemical penetration.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls : Avoid release to the environment.

Other information : Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: Clear
Colour	: Colourless
Odour	: Hydrocarbon
Odour threshold	: No data available
pH	: Neutral
Melting point	: No data available
Freezing point	: No data available
Boiling point	: -118 °C (-245 °F)
Flash point	: 15 °C (59 °F)
Relative evaporation rate (butylacetate=1)	: 1
Flammability (solid, gas)	: Highly flammable liquid and vapour.
Vapour pressure	: No data available

Relative vapour density at 20 °C	: No data available
Relative density	: 0.76
Solubility	: No data available
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 0.786 cSt
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

9.2. OTHER INFORMATION

VOC content	: 750 g/l
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SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2. CHEMICAL STABILITY

Stable under normal conditions. May form flammable/explosive vapour-air mixture.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reactions known under normal conditions of use.

10.4. CONDITIONS TO AVOID

Heat. Sources of ignition. Direct sunlight. Incompatible materials.

10.5. INCOMPATIBLE MATERIALS

Oxidizing materials.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

May include, and are not limited to: oxides of carbon. May release flammable gases.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity (oral)	: Not classified.
Acute toxicity (dermal)	: Not classified.
Acute toxicity (inhalation)	: Not classified.

Naphtha, petroleum, hydrotreated light (64742-49-0)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 3160 mg/kg
LC50 inhalation rat	73680 ppm/4h

Skin corrosion/irritation	: Causes skin irritation. pH: Neutral
Serious eye damage/irritation	: Not classified. pH: Neutral
Respiratory or skin sensitisation	: Not classified.
Germ cell mutagenicity	: Not classified.
Carcinogenicity	: Not classified.
Reproductive toxicity	: Not classified.
STOT-single exposure	: May cause drowsiness or dizziness.
STOT-repeated exposure	: Not classified.
Aspiration hazard	: May be fatal if swallowed and enters airways.





Safety Data Sheet

SKC-S

Prepared according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

SKC-S	
Viscosity, kinematic (calculated value) (40 °C)	0.786 mm ² /s
Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause irritation to the respiratory tract.
Symptoms/effects after skin contact	: Causes skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin.
Symptoms/effects after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
Symptoms/effects after ingestion	: May be fatal if swallowed and enters airways. This product may be aspirated into the lungs and cause chemical pneumonitis. May cause stomach distress, nausea or vomiting.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecology - general : May cause long-term adverse effects in the aquatic environment.

12.2. PERSISTENCE AND DEGRADABILITY

SKC-S	
Persistence and degradability	Not established.

12.3. BIOACCUMULATIVE POTENTIAL

SKC-S	
Bioaccumulative potential	Not established.

12.4. MOBILITY IN SOIL

No additional information available

12.5. OTHER ADVERSE EFFECTS

Effect on the global warming : No known effects from this product.

Other information : No other effects known.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

Additional information : Handle empty containers with care because residual vapours are flammable. Do not reuse container.

SECTION 14: TRANSPORT INFORMATION

In accordance with DOT/TDG/IATA/IMDG

DOT : UN1268 Petroleum Distillates, n.o.s. (Naphtha) 3 II, marine pollutant

Transportation of Dangerous Goods : UN1268 Petroleum Distillates, n.o.s. (Naphtha) 3 II, marine pollutant

IATA : UN1268 Petroleum Distillates, n.o.s. (Naphtha) 3 II, marine pollutant

IMDG : UN1268 Petroleum Distillates, n.o.s. (Naphtha) 3 II, marine pollutant

SECTION 15: REGULATORY INFORMATION

15.1. FEDERAL REGULATIONS

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

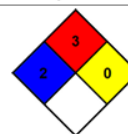


Safety Data Sheet

SKC-S

Prepared according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

NFPA health hazard	: 2
NFPA fire hazard	: 3
NFPA reactivity	: 0



15.2. INTERNATIONAL REGULATIONS

No additional information available

15.3. US STATE REGULATIONS

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: OTHER INFORMATION

Revision date : 03/05/2025

Other information : None.

Prepared by : Nexreg Compliance Inc.
www.Nexreg.com



SDS HazCom 2012 - WHMIS 2015 (Nexreg_MAGNAFLUX)

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Lampiran 5. MSDS Developer



Safety Data Sheet

SKD-S2

Prepared according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Date of issue: 06/14/2016

Revision date: 03/05/2025

Version: 1.2

SECTION 1: IDENTIFICATION

1.1. PRODUCT IDENTIFIER

Product name : SKD-S2
Product code : Not available

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Use of the substance/mixture : Non-Destructive Testing.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Manufacturer
Magnaflux
155 Harlem Ave.
Glenview, IL 60025 - USA
T: 847-657-5300

Distributor

1.4. EMERGENCY TELEPHONE NUMBER

Emergency number : CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS classification

Flam. Liq. 2

Eye Irrit. 2A

STOT SE 3

2.2. LABEL ELEMENTS

GHS labelling

Hazard pictograms (GHS)



Signal word (GHS)

: Danger

Hazard statements (GHS)

: Highly flammable liquid and vapor. Causes serious eye irritation. May cause drowsiness or dizziness.

Precautionary statements (GHS)

: Keep away from heat/sparks/open flames/hot surfaces.— No smoking. Keep container tightly closed. Ground/Bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/eye protection/face protection. Wash hands thoroughly after handling. Avoid breathing dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If in eyes: 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. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. Store in a well-ventilated place. Keep cool. Store locked up. Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. OTHER HAZARDS

No additional information available

2.4. UNKNOWN ACUTE TOXICITY (GHS)

Not applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCE

Not applicable



3.2. MIXTURE

Name	Product identifier	%
Isopropyl alcohol	(CAS No) 67-63-0	64.31
Acetone	(CAS No) 67-64-1	20.52

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

- First-aid measures after inhalation : If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
- First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.
- First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. If irritation persists, get medical attention.
- First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

- Symptoms/injuries after inhalation : May cause respiratory tract irritation. May cause drowsiness or dizziness.
- Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
- Symptoms/injuries after eye contact : Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
- Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

- Suitable extinguishing media : Water spray, water fog, dry chemical, carbon dioxide, foam.
- Unsuitable extinguishing media : Do not use water jet.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

- Fire hazard : Highly flammable liquid and vapour. Products of combustion may include, and are not limited to: oxides of carbon. Vapors may be heavier than air and may travel along the ground to a distant ignition source and flash back.
- Explosion hazard : May form flammable/explosive vapour-air mixture.

5.3. ADVICE FOR FIREFIGHTERS

- Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA). Use water spray to keep fire-exposed containers cool.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

- General measures : Eliminate sources of ignition. Use special care to avoid static electric charges. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

- For containment : Stop leak, if possible without risk. Move containers from spill area. Use only non-sparking tools. Use explosion-proof equipment. Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
- Methods for cleaning up : Scoop up material and place in a disposal container. Provide ventilation.

6.3. REFERENCE TO OTHER SECTIONS

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

- Additional hazards when processed : Handle empty containers with care because residual vapours are flammable.



Precautions for safe handling	: Keep away from sources of ignition - No smoking. Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Take precautionary measures against static discharge. Use only non-sparking tools. Use explosion-proof equipment. Use only outdoors or in a well-ventilated area.
Hygiene measures	: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.
7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES	
Technical measures	: Proper grounding procedures to avoid static electricity should be followed.
Storage conditions	: Keep locked up and out of reach of children. Keep container tightly closed. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatibles.

7.3. SPECIFIC END USE(S)

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION
8.1. CONTROL PARAMETERS

Isopropyl alcohol (67-63-0)		
ACGIH	ACGIH TWA (ppm)	200 ppm
ACGIH	ACGIH STEL (ppm)	400 ppm
OSHA	OSHA PEL (TWA) (mg/m ³)	980 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	400 ppm
USA - IDLH	US IDLH (ppm)	2000 ppm (10% LEL)
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	980 mg/m ³
USA - NIOSH	NIOSH REL (TWA) (ppm)	400 ppm
USA - NIOSH	NIOSH REL (STEL) (mg/m ³)	1225 mg/m ³
USA - NIOSH	NIOSH REL (STEL) (ppm)	500 ppm
Acetone (67-64-1)		
ACGIH	ACGIH TWA (mg/m ³)	1188 mg/m ³ /8h
ACGIH	ACGIH TWA (ppm)	500 ppm/8h
ACGIH	ACGIH STEL (mg/m ³)	1782 mg/m ³ /15 minutes
ACGIH	ACGIH STEL (ppm)	750 ppm/15 minutes
OSHA	OSHA PEL (TWA) (mg/m ³)	2400 mg/m ³
OSHA	OSHA PEL (TWA) (ppm)	1000 ppm
USA - IDLH	US IDLH (ppm)	2500 ppm (10% LEL)
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	590 mg/m ³ /10h
USA - NIOSH	NIOSH REL (TWA) (ppm)	250 ppm/10h

8.2. EXPOSURE CONTROLS

Appropriate engineering controls	: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
Hand protection	: Wear chemically resistant protective gloves.
Eye protection	: Safety glasses with side-shields.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Environmental exposure controls	: Maintain levels below Community environmental protection thresholds.
Other information	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.



SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: White liquid
Colour	: White
Odour	: Alcohol
Odour threshold	: No data available
pH	: Neutral
Melting point	: No data available
Freezing point	: No data available
Boiling point	: ~55 °C (~132 °F)
Flash point	: ~ -16 °C (~2 °F)
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Flammable
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: No data available
Relative density	: 0.87
Relative vapour density at 20 °C	: No data available
Solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. OTHER INFORMATION

VOC content	: 718.66 g/l
VOC minus exempt solvents	: 544.65 g/l

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2. CHEMICAL STABILITY

Stable under normal storage conditions. May form flammable/explosive vapour-air mixture.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reaction known under conditions of normal use.

10.4. CONDITIONS TO AVOID

Heat. Incompatible materials. Ignition sources.

10.5. INCOMPATIBLE MATERIALS

Aldehydes, halogenated organics, halogens, acids, oxidizing materials.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

May include, and are not limited to: oxides of carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity	: Not classified.
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SKD-S2	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg

SKD-S2	
LC50 inhalation rat	> 20 mg/l/4h
Isopropyl alcohol (67-63-0)	
LD50 oral rat	5840 mg/kg
LD50 dermal rabbit	> 12800 mg/kg
LC50 inhalation rat	> 10000 ppm/6h
Acetone (67-64-1)	
LD50 oral rat	5800 mg/kg
LC50 inhalation rat	76 mg/l/4h (female)
LC50 inhalation rat	132 mg/l/3h (male)
Skin corrosion/irritation	: Based on available data, the classification criteria are not met.
Serious eye damage/irritation	: Causes serious eye irritation.
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.
Isopropyl alcohol (67-63-0)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure)	: May cause drowsiness or dizziness.
Specific target organ toxicity (repeated exposure)	: Based on available data, the classification criteria are not met.
Aspiration hazard	: Based on available data, the classification criteria are not met.
Symptoms/injuries after inhalation	: May cause respiratory tract irritation. May cause drowsiness or dizziness.
Symptoms/injuries after skin contact	: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact	: Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.
Symptoms/injuries after ingestion	: May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecology - general : May cause long-term adverse effects in the aquatic environment.

12.2. PERSISTENCE AND DEGRADABILITY

SKD-S2	
Persistence and degradability	Not established.

12.3. BIOACCUMULATIVE POTENTIAL

SKD-S2	
Bioaccumulative potential	Not established.

12.4. MOBILITY IN SOIL

No additional information available

12.5. OTHER ADVERSE EFFECTS

Effect on the global warming : No known effects from this product.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

Additional information : Handle empty containers with care because residual vapours are flammable.

SECTION 14: TRANSPORT INFORMATION

In accordance with DOT/TDG/IATA/IMDG

DOT : UN 1993, Flammable liquids, n.o.s. (Isopropanol, Acetone), 3, II

TDG : UN 1993, Flammable liquids, n.o.s. (Isopropanol, Acetone), 3, II

IATA	: UN 1993, Flammable liquids, n.o.s. (Isopropanol, Acetone), 3, II (Cargo aircraft only)
IMDG	: UN 1993, Flammable liquids, n.o.s. (Isopropanol, Acetone), 3, II (Non-bulk only)

ADDITIONAL INFORMATION

Other information : No supplementary information available.

Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: REGULATORY INFORMATION

15.1. FEDERAL REGULATIONS

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories, except for:

Chlorite-group minerals	CAS No 1318-59-8
Isopropyl alcohol (67-63-0)	
Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA
SARA Section 313 - Emission Reporting	1.0 % (only if manufactured by the strong acid process, no supplier notification)
Acetone (67-64-1)	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA

NFPA health hazard : 2

NFPA fire hazard : 3

NFPA reactivity : 0



15.2. US STATE REGULATIONS

SKD-S2	
State or local regulations	This product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm

SECTION 16: OTHER INFORMATION

Date of issue : 06/14/2016

Revision date : 03/05/2025

Other information : None.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

Lampiran 6. MSDS *Red Penetrant*

Safety Data Sheet

SKL-SP2



according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Date of issue: 01/20/2016

Revision date: 07/10/2023

Version: 2.2

SECTION 1: IDENTIFICATION

1.1. PRODUCT IDENTIFIER

Product name : SKL-SP2
Product code : Not available

1.2. RELEVANT IDENTIFIED USES OF THE SUBSTANCE OR MIXTURE AND USES ADVISED AGAINST

Use of the substance/mixture : Non-Destructive Testing.

1.3. DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Manufacturer
Magnaflux
155 Harlem Ave.
Glenview, IL 60025 - USA
T: 847-657-5300

Distributor

1.4. EMERGENCY TELEPHONE NUMBER

Emergency number : CHEMTREC 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS classification

Aspiration hazard 1

2.2. LABEL ELEMENTS

GHS labelling

Hazard pictograms (GHS)



GHS08

Signal word (GHS) : Danger

Hazard statements (GHS) : May be fatal if swallowed and enters airways.

Precautionary statements (GHS) : If swallowed: Immediately call a poison center. Do NOT induce vomiting. Store locked up. Dispose of contents and container in accordance with all local, regional, national and international regulations.

2.3. OTHER HAZARDS

No additional information available

2.4. UNKNOWN ACUTE TOXICITY (GHS)

Not applicable.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. SUBSTANCE

Not applicable.

3.2. MIXTURE

Name	Product identifier	%
White mineral oil, petroleum	(CAS No) 8042-47-5	73.20
Distillates, petroleum, hydrotreated light naphthenic	(CAS No) 64742-53-6	7.77

SECTION 4: FIRST AID MEASURES

4.1. DESCRIPTION OF FIRST AID MEASURES

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.



according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

First-aid measures after skin contact	: If irritation occurs, flush skin with plenty of water. Get medical attention if irritation persists.
First-aid measures after eye contact	: In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.
First-aid measures after ingestion	: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

4.2. MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Symptoms/injuries after inhalation	: May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways. May cause stomach distress, nausea or vomiting. This product may be aspirated into the lungs and cause chemical pneumonitis.

4.3. INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: FIREFIGHTING MEASURES

5.1. EXTINGUISHING MEDIA

Suitable extinguishing media	: Powder, water fog, foam, carbon dioxide, sand.
Unsuitable extinguishing media	: Do not use water jet.

5.2. SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire hazard	: Products of combustion may include, and are not limited to: oxides of carbon.
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5.3. ADVICE FOR FIREFIGHTERS

Protection during firefighting	: Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).
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SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General measures	: Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
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6.2. METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

For containment	: Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).
Methods for cleaning up	: Scoop up material and place in a disposal container. Spill area may be slippery. Provide ventilation.

6.3. REFERENCE TO OTHER SECTIONS

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: HANDLING AND STORAGE

7.1. PRECAUTIONS FOR SAFE HANDLING

Precautions for safe handling	: Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.
Hygiene measures	: Wash hands before eating, drinking, or smoking. Launder contaminated clothing before reuse.

7.2. CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage conditions	: Keep out of the reach of children. Keep container tightly closed. Store locked up. Keep in a cool, well-ventilated place.
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7.3. SPECIFIC END USE(S)

Not available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. CONTROL PARAMETERS

White mineral oil, petroleum (8042-47-5)		
ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³ (mist)
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³ (mist)



Safety Data Sheet SKL-SP2

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Distillates, petroleum, hydrotreated light naphthenic (64742-53-6)

ACGIH Not applicable

OSHA Not applicable

8.2. EXPOSURE CONTROLS

Appropriate engineering controls	: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.
Hand protection	: Chemical-resistant gloves.
Eye protection	: Safety glasses or goggles are recommended when using product.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Environmental exposure controls	: Maintain levels below Community environmental protection thresholds.
Other information	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: Liquid
Appearance	: Oily
Colour	: Dark red
Odour	: Mild
Odour threshold	: No data available
pH	: Neutral
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 108 °C (226 °F)
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: Not flammable
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Vapour pressure	: < 1 mmHg
Relative density	: 0.844
Relative vapour density at 20 °C	: No data available
Solubility	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: 4.109 cSt
Viscosity, dynamic	: No data available

9.2. OTHER INFORMATION

VOC content : 333.87 g/l

SECTION 10: STABILITY AND REACTIVITY

10.1. REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2. CHEMICAL STABILITY

Stable under normal storage conditions.

10.3. POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reaction known under conditions of normal use.

10.4. CONDITIONS TO AVOID

Heat. Incompatible materials. Direct sunlight.

10.5. INCOMPATIBLE MATERIALS

Strong oxidizing agents.

10.6. HAZARDOUS DECOMPOSITION PRODUCTS

May include, and are not limited to: oxides of carbon.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. INFORMATION ON TOXICOLOGICAL EFFECTS

Acute toxicity : Not classified.

SKL-SP2	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	No data available

White mineral oil, petroleum (8042-47-5)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg

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.
Specific target organ toxicity (single exposure)	: Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure)	: Based on available data, the classification criteria are not met.
Aspiration hazard	: May be fatal if swallowed and enters airways.
Symptoms/injuries after inhalation	: May cause respiratory tract irritation.
Symptoms/injuries after skin contact	: May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact	: May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion	: May be fatal if swallowed and enters airways. May cause stomach distress, nausea or vomiting. This product may be aspirated into the lungs and cause chemical pneumonitis.

SECTION 12: ECOLOGICAL INFORMATION

12.1. TOXICITY

Ecology - general : May cause long-term adverse effects in the aquatic environment.

12.2. PERSISTENCE AND DEGRADABILITY

SKL-SP2	
Persistence and degradability	Not established.

12.3. BIOACCUMULATIVE POTENTIAL

SKL-SP2	
Bioaccumulative potential	Not established.

12.4. MOBILITY IN SOIL

No additional information available.

12.5. OTHER ADVERSE EFFECTS

Effect on the global warming : No known ecological damage caused by this product.



Safety Data Sheet SKL-SP2

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. WASTE TREATMENT METHODS

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

SECTION 14: TRANSPORT INFORMATION

In accordance with DOT/TDG

Not regulated for transport

ADDITIONAL INFORMATION

Other information : No supplementary information available.

Special transport precautions : Do not handle until all safety precautions have been read and understood.

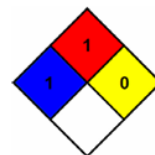
SECTION 15: REGULATORY INFORMATION

15.1. US FEDERAL REGULATIONS

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

NFPA health hazard : 1
NFPA fire hazard : 1
NFPA reactivity : 0



15.2. US STATE REGULATIONS

SKL-SP2

State or local regulations	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.
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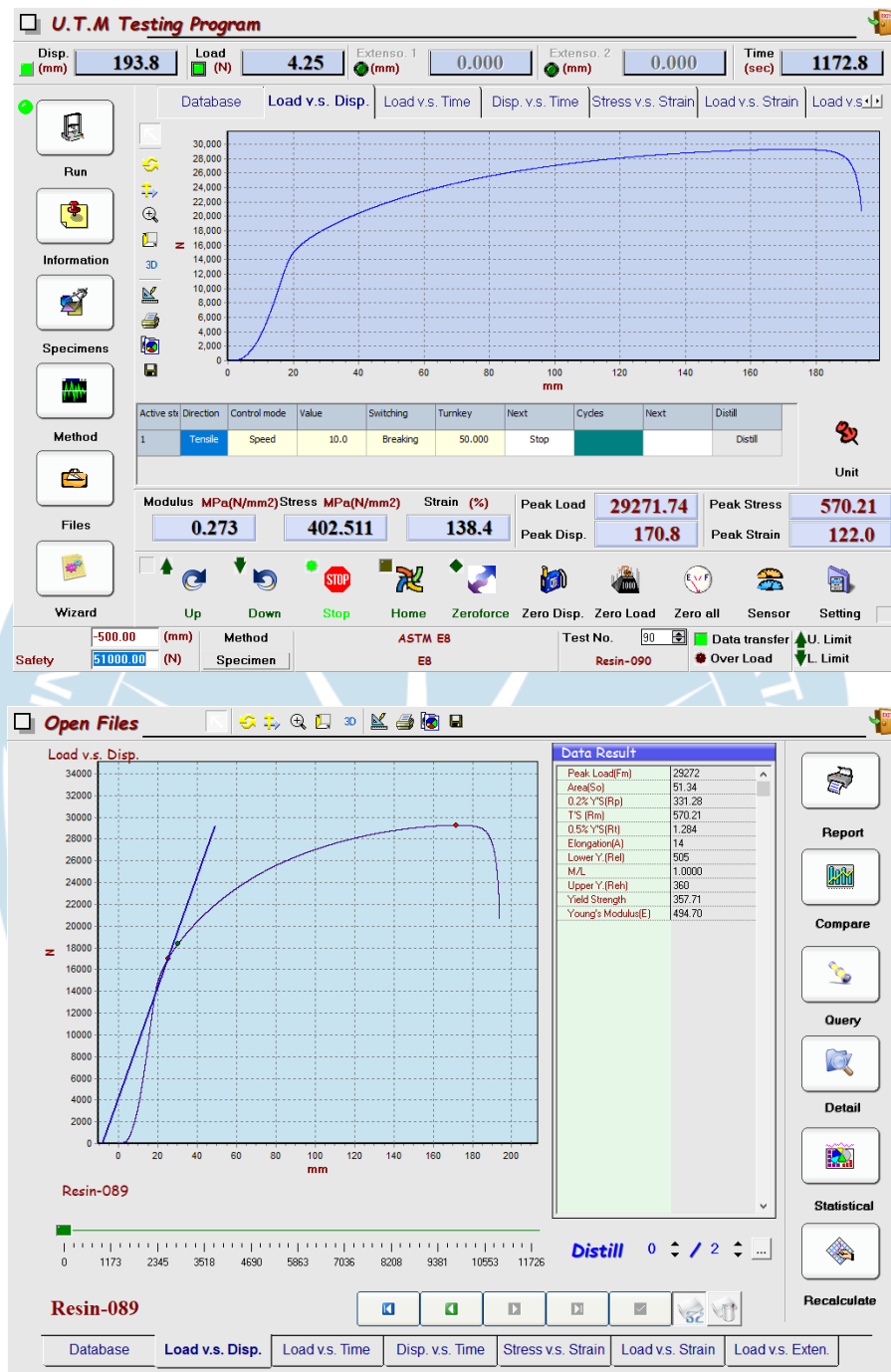
SECTION 16: OTHER INFORMATION

Date of issue : 01/20/2016
Revision date : 07/10/2023
Version : 2.2

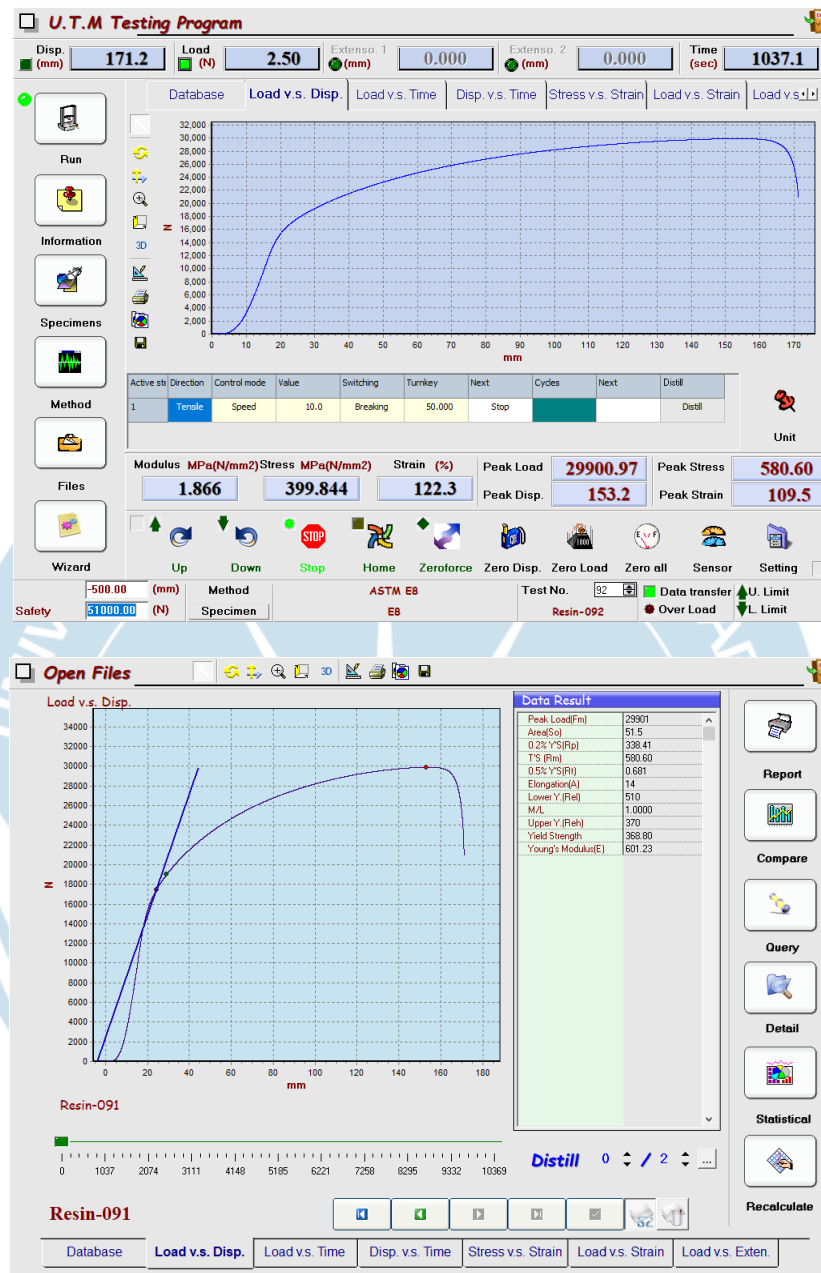
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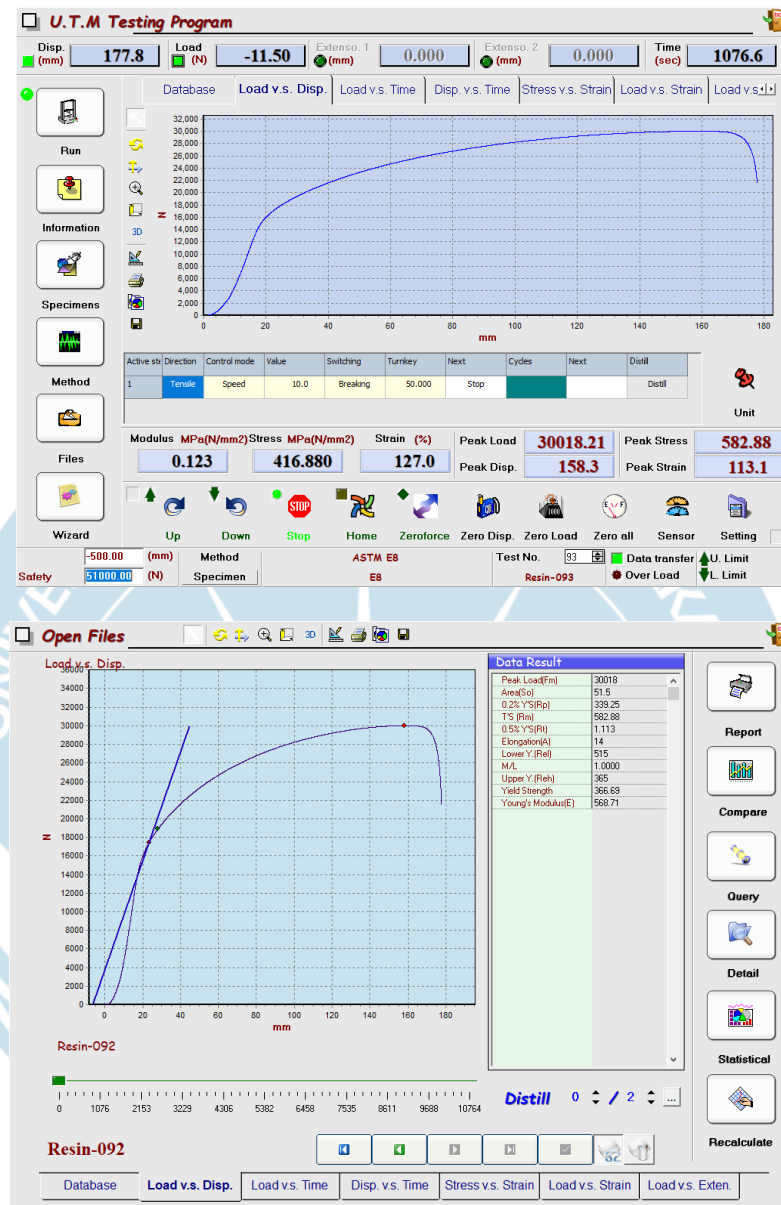
Lampiran 7. Load vs Displacement Base



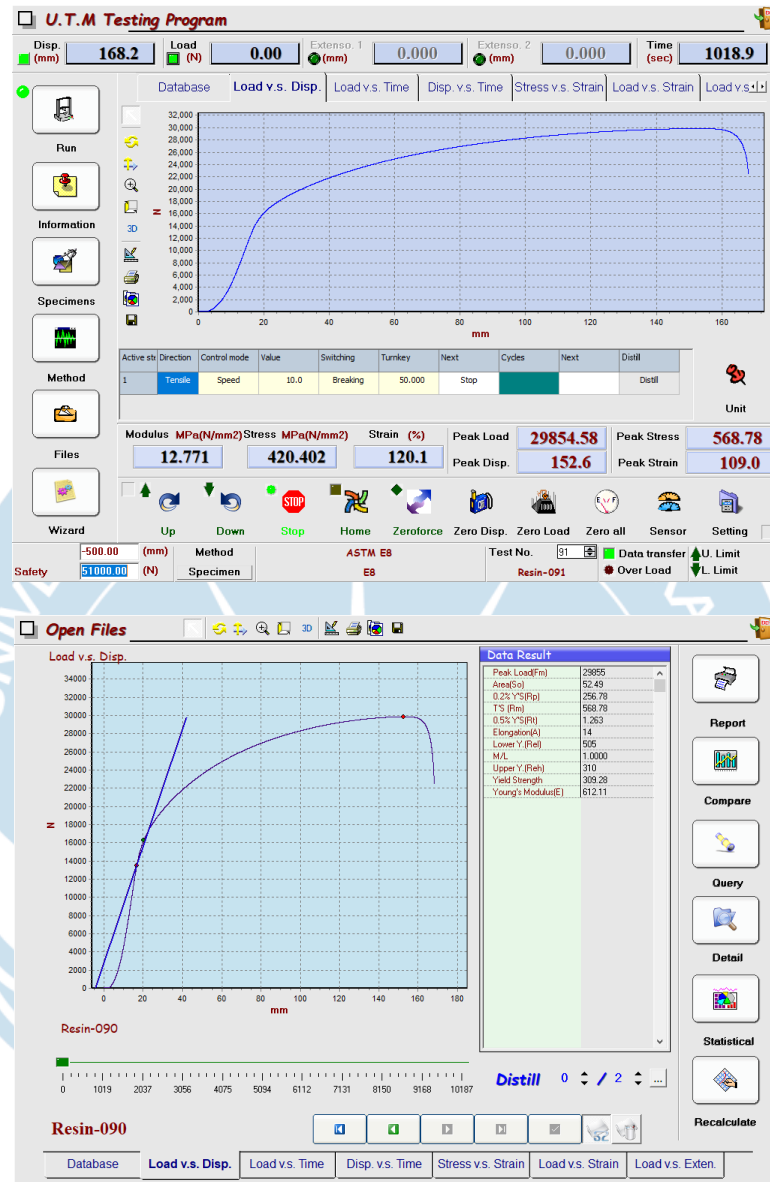
Lampiran 8. Load vs Displacement Arus 105 A



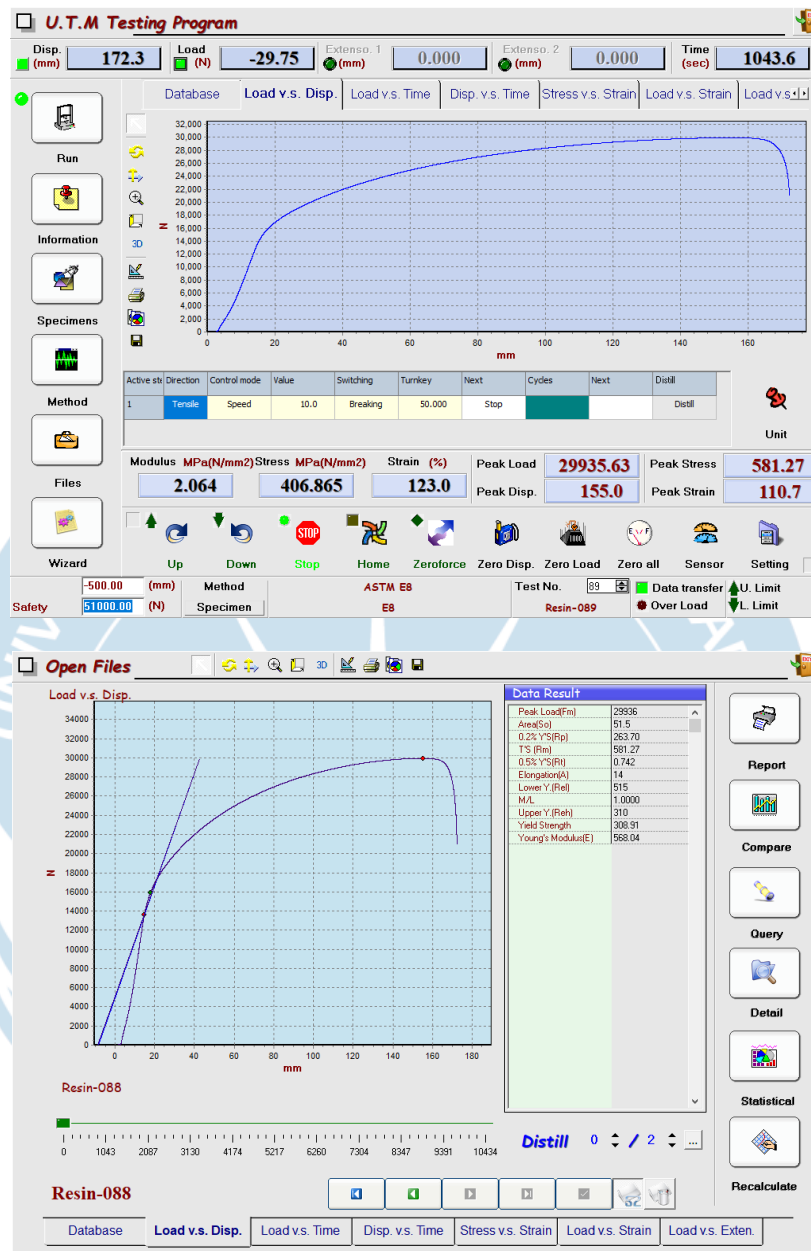
Lampiran 9. Load vs Displacement Arus 110 A



Lampiran 10. Load vs Displacement Arus 115 A



Lampiran 11. Load vs Displacement Arus 120 A



Lampiran 12. Hasil Turnitin

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