

## Safety Data Sheet

Reference No. 3261

Issue: 1<sup>st</sup> September 2010  
Revision: 3<sup>rd</sup> September 2018

### 1. Chemical product and company identification

Product name	Soil Screening Set: Oil	Model SOA-OIL2
	Soil Screening Reagent Set: Oil	Model SOA-OIL-NM
	Soil Screening Refill Reagent Set: Oil	Model SOA-OIL-RR

Company name	KYORITSU CHEMICAL-CHECK Lab., Corp.
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Recommended uses and restrictions      Reagent for Soil quality measurement

### 2. Hazards identification

Most important hazards information:      Irritation  
Its effects:                                      Harmful if inhaled or ingested. Contact with eyes, skin and mucous causes irritation.  
Long-term exposure may cause discomfort feeling, nausea or headache.

#### [GHS Classification]

Physical hazards:	Classification not possible (no data for GHS classification available)
Health hazards:	Not classified or classification not possible (no data for GHS classification available)
Environmental hazards:	Classification not possible (no data for GHS classification available)

#### [GHS labeling elements]

None

#### [Signal word]

None

#### [Hazard statements]

None

#### [Precautionary statements]

Keep out of reach of children and store in the cool, dry and dark place.  
Carefully read instructions before use and do not use for other purposes.  
Wear personal protective equipment if necessary.  
Do not inhale reagents.  
Wash contaminated clothing.  
Wash hands thoroughly before and after handling.  
Avoid release to the environment.

### 3. Composition/ information on ingredients

Discrimination of single substance or mixture: Mixture

Reagent name	R-1 reagent	R-2 reagent				R-3 reagent
Chemical name	Poly( <i>N</i> -isopropyl acrylamide)	Sodium chloride	Thymol (2-Isopropyl-5-methylphenol)	Other ingredient	Water	Water
Content	100%	<10%	<0.01%	<1%	>90%	100%
Chemical formula	$[\text{CH}_2\text{CH}\{\text{CONHC}\text{H}(\text{CH}_3)_2\}]_n$	NaCl	$\text{CH}_3\text{C}_6\text{H}_3\text{CH}(\text{CH}_3)_2\text{OH}$	-	$\text{H}_2\text{O}$	$\text{H}_2\text{O}$
METI No. (reference number under CSCL in Japan)	6-2134	1-236	3-521 4-57	-	-	-
CAS No.	25189-55-3	7647-14-5	89-83-8	-	7732-18-5	7732-18-5

Note: This product requires users to prepare ethanol separately for dissolving R-1 reagent prior to use. Consequently, refer to the SDS of the ethanol, which described appropriate manners of storage, handling and disposal.

### 4. First-aid measures

If reagents or test solutions;

Enter in eyes: Immediately rinse thoroughly  
 Contact with skin: Immediately wash out contaminated site with plenty of water.  
 Enter into mouth: Immediately rinse mouth with plenty of water.

If ingested or in case any symptoms appear after above measures, immediately get medical advice/ treatment.

### 5. Fire-fighting measures

Extinguishing methods: Cut off ignition sources and extinct by a suitable media.  
 Suitable extinguishing media: Water (mist), powder, carbon dioxide, dry sand.

### 6. Accidental release measures

In case of outdoor use: Avoid spill of reagents and waste solutions.

In case of indoor use: If spilled on a table or floor, wipe off immediately spilled reagents and dispose of them.

### 7. Handling and storage

Handling: Care should be made so that eye and skin contact or ingestion can be avoided.  
 Especially for outdoor use, ensure to bring back reagents, waste solutions after the measurement and used containers.

Storage: Avoid direct sunlight and store in a well-ventilated, dry and cool place.

### 8. Exposure controls and personal protection

Administrative control level  
 Working environment standard: Not established

Occupational exposure limits  
 Japan Society for Occupational health: Not established  
 Protective equipment: Recommended to wear protective glasses and gloves

## 9. Physical and chemical properties

Physical state:

- R-1 reagent: solid 0.3 g x 2 polypropylene-bottle
- R-2 reagent: liquid 375 mL x 1 polypropylene -bottle in poly bag
- R-3 reagent: liquid 150 mL x 1 polypropylene -bottle in poly bag

Color: R-1 reagent: white, others: colorless and transparent

Odor: R-2 reagent: characteristic odor, others: no odor

pH: Neutral, all reagents

Melting point, boiling point, flash point, ignition point, lower explosion limit, vapor pressure, density, specific gravity, solubility, Pow, kinetic viscosity: not available as a mixture.

## 10. Stability and reactivity

Avoid leaving in a place where high temperature, humid or under direct sunlight.

No data on flash point, ignition point, explosive limits and hazardous decomposition products is available. Although ethanol vapor produces an explosive mixed gas with air, it is stable under normal use conditions.

## 11. Toxicological information

No data on mixture is available. Data on each of R-1, R-2 and R-3 reagents are shown below.

R-1 reagent

Poly(*N*-isopropylacrylamide) type cross-linked co-polymer (data on Poly(*N*-isopropylacrylamide) is not available):

Acute toxicity: Oral-rat LD<sub>50</sub> > 2,000 mg/kg

Germ cell mutagenicity:

Negative (Ames test)

Other data: Not available.

R-2 reagent

Sodium chloride:

Acute toxicity:

Oral-rat LD<sub>50</sub> = 3,000 mg/kg (RTECS), Intraperitoneal-mouse LD<sub>50</sub> = 2,602 mg/kg (RTECS)

Intravenous-mouse LD<sub>50</sub> = 645 mg/kg (RTECS)

Skin corrosion/ irritation:

Rabbit 50 mg/24Hr mild irritation

Serious eye damage/ eye irritation:

Rabbit 10 mg moderate, 100 mg/24hr moderate eye irritation

Other data: Not available

Thymol (2-Isopropyl-5-methyl phenol):

Acute toxicity:

Oral: Classified as Category 4. Rat LD<sub>50</sub> = 980 mg/kg(IUCLID, 2000), and EU classify it as Xn; R22.

Dermal: Not classified. Zero tenth of rat died with 2000 mg/kg of dose (IUCLID, 2000).

Vapor: Not subject to classification. Thymol is solid based on the definition of GHS.

Skin corrosion/ irritation:

Classified as Category 1. OECD TG 404 tests with rabbits indicated corrosive (IUCLID, 2000), and EU classify it as C: R34.

Serious eye damage/ eye irritation:

Classified as Category 1. OECD TG 404 tests with rabbits indicated highly irritating (IUCLID, 2000).

Respiratory or skin sensitization:

Respiratory sensitization: Data not available.

Skin sensitization: Classification is not possible. Human patch tests indicated positive results with frequency of 1/4 and ca. 1/16 (IUCLID, 2000), but other sufficient information is not available.

Germ cell mutagenicity:

Not classified. Mouse bone-marrow micronucleus assay (OECD guideline 474, in vivo mutagenesis assay with somatic cells) indicated negative results (Report from Ministry of Health, Labor and Welfare, Japan, access on 9, 2008). For reference, negative results of Ames test as in vitro mutagenesis assay, positive results of chromosome aberration analysis with CHL cells were reported (Ministry of Health, Labor and Welfare, Japan, access on 9, 2008).

## Reproductive toxicity:

Classification is not possible because of data deficiency. For reference, oral study in parent rats (OECD TG 422) indicated no significant difference from control in estradiol cycle, copulation rate, conception rate, gestation period, number of corpus luteum, number of implantation, and fertility rate. Oral study in child rats at high level demonstrated inhibition of body weight gain, but indicated no significant difference in number of baby, gender ratio, fertility rate, and neonatal survival rate. The study did not indicate results of teratogenic symptoms (Report from Ministry of Health, Labor and Welfare, Japan, access on 9, 2008). Information of developmental toxicity for child is insufficient to classify.

## Specific target organ toxicity (repeated exposure):

Classification is not possible because of data deficiency. For reference, a gavage administration study in rats (OECD TG 422; dosage: 8, 24, 200 mg/kg/day; male: 43 days; female: from 14 days before mating to 3 days of lactational period) demonstrated hyperplasia of gastric mucosa, inflammatory cell infiltration, and edema for both male and female at dose of more than 40 mg/kg/day (Report from Ministry of Health, Labor and Welfare, Japan, access on 9, 2008). But their observations may be caused by irritant property. No significant effects were observed at dose of 200 mg/kg/day corresponding to over Category 2 in the guidance, except cases of weight decrease and one death for male, and a decrease in locomotor activity and ataxia of gait for female. Gavage administration study in rats for 19 weeks (1000, 10000 ppm/kg (ca. 75, 750 mg/kg/day)) indicated no significant effects at dose of 750 mg/kg corresponding to Category 2 in the guidance (IUCRID, 2000). This result was corresponding to not classified (oral), but sufficient information about via other routes is not available to classify.

## Water:

## Acute toxicity:

Oral: Human-infant  $TDL_0 = 333$  g/kg, cramping, attacks or fever.  
Human-men  $TDL_0 = 42.86$  g/kg, shaking, muscle pain.  
Rat  $LD_{50} > 90$  ml/kg  
Intravenous: Mouse-  $LD_{50} = 25$  g/kg  
Intraperitoneal: Mouse-  $LD_{50} = 190$  g/kg

Other data: Not available

## R-3 reagent

Water: Same as above.

GHS classification results are shown below.

## [Acute toxicity (oral)]

R-1, R-2 and R-3 reagents: All reagents are not classified based on application of additivity formula, based on of each  $LD_{50}$  value.

## [Skin corrosion/ irritation]

R-2 reagent: Contains less than 1% of category 1 substance: Not classified.

## [Serious eye damage/ eye irritation]

R-2 reagent: Contains less than 1% of category 1 substance: Not classified.

R-1, R-2 and R-3 reagents: [Acute toxicity (dermal)], [Acute toxicity (inhalation)], [Respiratory or skin sensitization], [Germ cell mutagenicity], [Carcinogenicity], [Reproductive toxicity], [Specific target organ toxicity (single exposure)], [Specific target organ toxicity (repeated exposure)]

Classifications are not possible because of data lack.

R-1 and R-3 reagents: [Skin corrosion/ irritation], [Serious eye damage/ eye irritation]

Classifications are not possible because of data lack.

## 12. Ecological information

Data on each of R-1 and R-2 reagent are shown below.

## R-1 reagent

Poly(*N*-isopropylacrylamide) type cross-linked co-polymer (data on Poly(*N*-isopropylacrylamide) is not available):

Hazardous to the aquatic environment Acute:

Fish (*Oryzias latipes*): 96-h  $LC_{50} = 5,000$  mg/L

Other data: Not available

R-2 reagent

Sodium chloride: No eco-toxicological information available.

Thymol (2-Isopropyl-5-methyl phenol):

Hazardous to the aquatic environment acute:

Classified as Category 2 because of the following data:

Crustacea (*Daphnia magna*): 48h EC<sub>50</sub> = 4.5 mg/L (Ministry of the Environment, Japan, 2004)

Hazardous to the aquatic environment long-term:

Not classified because of the following data:

Thymol is classified as Category 2 of the acute toxicity, and has not rapid degradability (persistent, extent of degradation as BOD: 0% (the Existing Chemicals Survey Program Conducted by the Japanese Government, 1996)); algae (*Pseudokirchneriella subcapitata*): 72h NOEC =1.9 mg/L (Ministry of the Environment, Japan, 2004).

Harmful effects on the ozone layer:

Classification is not possible because the substance is not described in Annex to Montreal Protocol.

GHS classification results are shown below.

[Hazardous to the aquatic environment acute]

R-1 reagent: Classification is not possible because of data lack.

R-2 reagent: Contains less than 0.01% of category 2 substance: Not classified.

[Hazardous to the aquatic environment long-term]

R-1 reagent: Classification is not possible because of data lack.

R-2 reagent: Classification is not possible because of data lack.

[Harmful effects on the ozone layer]:

Classification is not possible because each of the substances is not described in Annex to Montreal Protocol.

### 13. Disposal considerations

Always dispose of in accordance with local regulations.

R-2 reagent and waste solution contain 2.5 mg/test of thymol, a type of phenols.

### 14. Transport information

In addition to precautionary measures regarding handling and storage, avoid rough handling so as not to break containers. It is recommended to ship by air because under high temperature for long period may lead to deterioration.

UN classification and number: Not applicable  
Civil Aeronautics Act: Not applicable  
Fire Service Act: Not applicable  
Total weight of the product: ca. 3.0 kg/kit (SOA-OIL2)  
ca. 2.7 kg/kit (SOA-OIL-NM)  
ca. 1.1 kg/kit (SOA-OIL-RR)

### 15. Regulatory information

Poisonous and Deleterious Substances Control Act: Not applicable  
PRTR Act: Not applicable  
Industrial Safety and Health Act: Not applicable  
Water Pollution Control Act: R-2 Reagent contains thymol, applicable as "phenol compounds" by item 5 of article 3 under the Act.  
Sewage Act: R-2 Reagent contains thymol, applicable as "phenol compounds" by item 28 of article 9-4 under the Act.

## 16. Other information

### Reference literature

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Material Safety Data Sheet No.NP-2000, Hymo Co., Ltd. (2002.08.01)  
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Koukuu Kikenbutsu Yusou Houreisyu, Ed. MLIT, HOUBUN SHORIN CO., LTD. (2017)  
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)" (Japanese Industrial Standards Committee)  
JIS Z 7253:2012 Hazard communication of chemicals based on GHS-Labeling and Safety Data Sheet (SDS) (Japanese Industrial Standards Committee)  
UN GHS (tentative translation, forth revised version), GHS Kankei Syocho Renraku Kaigi (2011)  
Ministry of Economy, Trade and Industry, GHS Classification Guidance for Enterprises 2013 Revised Edition (2013)

NOTE) This information is not always exhaustive and use with care.  
This data sheet only provides information but any description cannot be warranted.  
Descriptions may possibly be changed because of new findings or modification of the current knowledge.  
Precautions only cover normal handling.  
This English SDS is prepared in the cooperation with the Chemicals Evaluation and Research Institute (CERI), Japan.