



U.S. Department  
of Transportation

**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

April 17, 2024

David Olsen, Jr.  
Technical Compliance Manager  
SET Environmental, Inc.  
14020 Interdrive West  
Houston, TX 77032

Reference No. 23-0105

Dear Mr. Olsen:

This letter is in response to your December 21, 2023, email requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to self-reactive materials and associated concentration limitations in the § 173.224(b) Self-Reactive Materials Table. Specifically, you ask for clarification regarding the concentration limit for “UN3224, Self-reactive solid type C, 4.1 (N,N’-Dinitrosopentamethylenetetramine)” as denoted in column (3) of the table.

We have paraphrased and answered your questions as follows:

- Q1. You state that the Self-Reactive Materials Table found in § 173.224 does not reference minimum concentrations using symbols similar to those used for maximum concentration entries. You ask whether a whole number without symbols in column 3—82% in the case of N,N’-Dinitrosopentamethylenetetramine—is to be viewed as a minimum concentration percentage.
- A1. The answer is no. It is not the intention of the table for a whole number to be viewed as a minimum concentration percentage. Minimum concentration percentages are only listed as part of a range, and in the example you cited, the 82% reflects the maximum concentration percentage allowed.
- Q2. You note that you are aware of a shipper that transports the material in concentrations greater than 82%, specifically, 93.85%-94.04%. You ask whether the product is properly packaged for transport as a “UN3224” at this concentration.
- A2. In accordance with § 173.22 of the HMR, it is the shipper’s responsibility to properly classify and describe a hazardous material. However, based on the information provided, the product concentration exceeds the maximum specified concentration allowed for this material under § 173.224(b). Self-reactive materials not listed in the § 173.224(b) Self-Reactive Materials Table must be approved by the Associate Administrator prior to transport, in accordance with the procedure described in § 173.124(a)(2)(iii).

Q3. If the answer to question Q2 is no, you ask what the whole numbers with no associated symbols mean in this table.

A3. The whole numbers on the Self-Reactive Materials Table represent the maximum concentrations authorized.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Dirk Der Kinderen', written in a cursive style.

Dirk Der Kinderen  
Chief, Standards Development Branch  
Standards and Rulemaking Division

**From:** Dodd, Alice (PHMSA)  
**To:** Jones, Jessie Jane CTR (PHMSA)  
**Subject:** FW: Request for Written Interpretation  
**Date:** Thursday, December 21, 2023 3:38:41 PM  
**Attachments:** image002.png  
image006.png  
image007.png  
GP3 QMS xms.PDF  
GP3 KR22491 Lot spec.pdf

Hi Jessie,

Please assign.

**From:** INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>  
**Sent:** Thursday, December 21, 2023 2:24 PM  
**To:** Dodd, Alice (PHMSA) <Alice.Dodd@dot.gov>; Hazmat Interps <hazmatinterps@dot.gov>  
**Subject:** FW: Request for Written Interpretation

Dear Alice,

See the attached interpretation request. Let us know if you need anything else.

Best,

Aminah

**From:** David Olsen <dolsen@setenvy.com>  
**Sent:** Thursday, December 21, 2023 10:49 AM  
**To:** INFOCNTR (PHMSA) <INFOCNTR.INFOCNTR@dot.gov>  
**Subject:** Request for Written Interpretation

**CAUTION:** This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

#### Request for Written Interpretation

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Good morning,

My company is currently assisting a customer that is planning to remove certain products from inventory over the next year, and we came across an inconsistency in the Self-Reactive Materials Table in 49 CFR 173.224 where the entries are at times confusing. We are requesting an interpretation regarding the reading on minimum, maximum, and ranges found on this table, and regarding the attached specific example and questions below.

**Situation-** Our customer has a few fiber drums of Unicell GP3 that will be removed over the next year. We have an SDS for the material listing this as UN3224: Self-Reactive Solid Type C, 4.1, and the official QA/QC spec sheet listing this as N,N'-Dinitrosopentamethylenetetramine 93.85%-94.04% with oil content 5.5-6.5% (boiling point >150 degrees C to meet Note #2 in the table- *mixing with compatible diluent having a boiling point not less than 150 C*). The concentration for this material on the table is listed as "82%" to receive a PSN of UN3224.

Self-reactive substance	Identification No.	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature	Notes
N,N'-Dinitrosopentamethylenetetramine	3224	82	OP6			2

We are now in discussions as to whether the manufacturer has been shipping this improperly or if there is confusion on the table entry interpretation. The CFR specifically says this about the concentration:

**Concentration of self-reactive material.** Column 3 specifies the concentration (percent) limitations, if any, in mixtures or solutions for the self-reactive material.

Limitations are given as minimums, maximums, or a range, as appropriate. A range includes the lower and upper limits (i.e., "53-100" means from, and including, 53 percent to, and including 100 percent).

Ranges and Maximums are clearly stated in the table using "<" or "≤", but Minimums currently are not. In no entry on the table is there a minimum entry documented as "≥52" or "≥82", so this could lead someone to interpret a listed whole number as a Minimum. Here are a couple situations where this is noticed:

**Range:** clearly state ranges understood as a min and a max (the below chemical can only be shipped if in the range of 67-100% unless noted by a Competent Authority letter)

Self-reactive substance	Identification No.	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature	Notes
2,5-Diethoxy-4-morpholinobenzenediazonium zinc chloride	3236	67-100	OP7	+35	+40	

**Maximum:** clearly stated max with the use of a "≤" (the below chemical can only be shipped if in a concentration ≤ 50% unless noted by a Competent Authority letter)

Self-reactive substance	Identification No.	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature	Notes
2,2'-Azodi(Isobutyronitrile) as a water based paste	3224	≤50	OP6			

**Minimum:** This one is where the inconsistencies begin, leaving this open to interpretation. This is also a perfect example since it is the same PSN UN3224 as the Maximum example above, and it left many people scratching their heads once we started discussing it.

Self-reactive substance	Identification No.	Concentration (%)	Packing method	Control temperature (°C)	Emergency temperature	Notes
N,N'-Dinitrosopentamethylenetetramine	3224	82	OP6			2

The way I read the table is if it's a minimum, it's a single number like 82% as we're dealing with.

To me, the whole number could be expressing a minimum value because at no point in the table is there any reference to something as > or ≥ except for a range. This terminology would indicate a minimum if used, which led me to believe that when the table was created, whole numbers such as “82” were referencing minimum percentages, and if as in this case a mixture with “94%” would also fall under UN3224.

I did research further and compared this table to the next most similar one for Organic Peroxide classification in 49 CF 173.225, and that table does make use of the “>” symbol, and in each case it referred to a range such as “>52-80%” or an upper a base minimum to 100% such as “>80-100%”, further making me think that possibly the whole number “82%” could mean “>82-100%” since nothing references minimums in 49 CFR 173.224.

Q1. At no point in the Self-Reactive Materials table found in 49 CFR 173.224 are minimums referenced using “>” or “≥” as would be expected when compared with maximum entries. Was it the intention of the table for a whole number (82% as in this case) to be viewed as a minimum percentage to utilize a specific PSN?

Q2. If yes and this is the proper train of thought, is the Unicell GP3 product properly classified as a UN3224 and shippable?

Q3. If no, how should we interpret whole numbers on this table moving forward and how are minimums being reflected on the table?

Your written response to this is greatly appreciated. If you require any further information, feel free to contact me at (281) 227-5166 or (281) 755-4992.

Thank you for your time,

David Olsen, Jr CHMM  
Technical Compliance Manager  
(281) 227-5166 OFFICE  
(281) 755-4992 CELL

**SET**  
**Environmental, Inc**  
14020 Interdrive West  
Houston, TX 77032

24-Hour Emergency **877.437.7455**



[www.setenv.com](http://www.setenv.com)

# UNICELL - GP3

100Lbs Net  
(45.4 Kgs)

Foaming Agent for Rubber and Plastic Compositions

For Industrial Use Only

(Contain dinitrosopentamethylenetetramine)

## CAUTION !

### HEALTH HAZARD DISCLOSURE

- 1) EYE AND MUCOUS MEMBRANE IRRITANT.
- 2) MAY CAUSE PULMONARY SENSITIZATION IN SOME PERSONS.

Avoid contact with eyes and skin. Wear goggles and coveralls. Avoid breathing dust. Use only with adequate ventilation of NIOSH/MSHA approved respiratory protection to prevent dust Inhalation. Wash clothing before re-use.

**FIRST AID :** For EYE or SKIN contact flush with water for 15 minutes. Call a physician. IF INHALED, remove to fresh air. Call a physician.

**SPILL or LEAK :** Wear NIOSH/MSHA approved dust respirator. Follow OSHA regulations for respirator use (29-CFR 1910.134). Wear Goggles, coveralls, impervious gloves and boots. Wash all contaminated clothing before re-use. sweep up material and place in an approved DOT container and seal. Flush residual with plenty of water.

UNICELL is a trademark of DONGJIN Semichem Co., Ltd.

**STORAGE :** Store in a dry area. Keep containers sealed when not in use.

**DISPOSAL :** Any unused product, residue and flush water should be disposed of in a manner approved for this material. Consult the appropriate Federal, state, and local regulatory agencies to ascertain proper disposal procedures.

NO WARRANTY, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, IS MADE. EXCEPT THAT THE PRODUCT CONFORMS TO DONGJIN CHEMICAL'S SPECIFICATIONS BUYER ASSUMES ALL RISK OF USE, STORAGE AND HANDLING. DONGJIN CHEMICAL SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING DIRECTLY OR INDIRECTLY IN CONNECTION WITH THE PURCHASE USE STORAGE OR HANDLING OF THE PRODUCT.

## DONG JIN SEMICHEM

CO., LTD.

8F SEOPYUNG B/D 146-8 DONGGYO-DONG, SEOUL, KOREA

EMERGENCY PHONE : (82) 2-325-9451-8



# Material Safety Data Sheet

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- (1) Product Name: UNICELL – GP3
- (2) Advisable use and Restriction
- ☐ Advisable use: Foaming agent for manufacturing of thermoplastic resin and elastomer
  - ☐ Restriction of product using: No data available
- (3) Manufacturer / Supplier / Distributor information
- ☐ Company: DONGJIN SEMICHEM CO., LTD.
  - ☐ Address: 23<sup>rd</sup> F, KGIT Center, 1601, Sangam-dong, Mapo-gu, Seoul, Korea
  - ☐ Emergency response number: (TEL) +82-2-325-9451 / (FAX) +82-2-325-9459
  - ☐ Division: QUALITY ASSURANCE

## 2. HAZARD IDENTIFICATION

- (1) Hazard classification
- ☐ Flammable Solid : Category 1
  - ☐ Respiratory sensitization : Category 1
- (2) Allocation label elements
- ☐ Symbol



- ☐ Signal word
  - Danger
- ☐ Hazard statements
  - H228 Flammable solid
  - H304 May be fatal if swallowed and enters airways
- ☐ Precautionary statements
  - Prevention
    - P210 Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
    - P240 Ground/bond container and receiving equipment.
    - P241 Use explosion-proof electrical/ventilating/lighting/ equipment.
    - P280 Wear protective gloves/protective clothing/eye protection/face protection.



- Response
  - P370+P378 In case of fire: Use suitable extinguishing media for extinction.
  - P301+P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
  - P331 Do NOT induce vomiting.
- Storage
  - P410 Protect from sunlight.
- Disposal
  - P501 Dispose of content/container in accordance with local regulations.

(3) Other hazard information not included in hazard classification

○ NFPA Rating system: Health ( 1 ), Flammability ( 0 ), Reactivity ( 3 )

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

No.	Components	Common name	CAS No.	PCT (WT)(%)
1	DINITROSOPENTAMETHYLENETETRAMINE	DNPT	101-25-7	100

※ The information above is trade secret so that leak is prohibited to the other companies.

### 4. FIRST AID MEASURES

- (1) Eye contact
- Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
- (2) Skin contact
- Wash off with soap and plenty of water. Consult a physician.
- (3) Inhalation
- If breathed in, move person into fresh air. If not breathing give artificial respiration  
Consult a physician.
- (4) Ingestion
- Never give anything by mouth to an unconscious person. Rinse mouth with water.  
Consult a physician.
- (5) Delayed and immediate effects and also chronic effects from short and long term exposure
- ○ No data available
- (6) Notes to Physician
- ○ No data available

### 5. FIRE FIGHTING MEASURES

- (1) Suitable (Unsuitable) extinguishing media

- ☐ Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide.
  - ☐ Unsuitable extinguishing media: Do not attempt manual fire-fighting.
- (2) Specific hazards arising from the chemical:
- ☐ Combustion products: Carbon oxides, Nitrogen oxides
  - ☐ Fire and explosion hazards: Not available.
- (3) Fire fighting procedures and equipments:
- ☐ SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto-ignition or explosion.
  - ☐ Wear self contained breathing apparatus for fire fighting if necessary.

## 6. ACCIDENTAL RELEASE MEASURES

- (1) Personal Precautions, Protective Equipment and Emergency procedures:
- ☐ Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.
- (2) Environmental Precautions:
- ☐ Do not let product enter drains.
- (3) Methods and materials for containment and cleaning up:
- ☐ Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

- (1) Handling
- ☐ Keep away from heat.  
Keep away from sources of ignition.  
Do not ingest.  
Do not breathe dust.  
Wear suitable protective clothing.  
In case of insufficient ventilation, wear suitable respiratory equipment.  
If ingested, seek medical advice immediately and show the container or the label.  
Avoid contact with skin and eyes.  
Keep away from incompatibles such as oxidizing agents.
- (2) Storage
- ☐ Keep container in a cool, well-ventilated area.  
Keep container tightly closed and sealed until ready for use.  
Avoid all possible sources of ignition (spark or flame).



## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

### (1) Exposure limits value

No.	Component	KOREA regulation	ACGHI(BEI)	BAT	Others
1	DINITROSOPENTAMETHYLENETETRAMINE	No data available	Not applicable <sup>2</sup>	Not applicable	Not applicable

### (2) Appropriate Engineering Controls:

- Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits.

If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### (3) Personal Protective Equipment:

- Respiratory protection
  - Where risk assessment shows air-purifying respirators are appropriate use a dust mask.
  - Use respirators and components tested and approved under appropriate government standards.
- Eye protection
  - Safety glasses with side shields.
- Hand Protection:
  - Chemical resistant protective gloves.
- Body Protection:
  - Wear protective clothing, such as long sleeves to minimize skin contact.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Components & Product Spec.	Product
(1) Appearance	Pale Yellow
(2) Odor	Characteristic
(3) Threshold of odor	No data available
(4) pH	No data available
(5) M.P/B.P	Decomposition Temperature 197-203 °C / No data available
(6) Initial boiling point or range	No data available
(7) Flash point	No data available
(8) Evaporation rate	No data available



(9) Flammability(solids, gas)	No data available
(10) Upper/lower flammability/explosive limit	No data available
(11) Vapor pressure	No data available
(12) Solubility	0.0057 mg/l (In water)
(13) Vapor density	6.4
(14) Specific gravity	1.45 g/cm3 at 20 °C (68 °F)
(15) n-octanol/water partition coefficient	-1.70
(16) Auto ignition temperature	No data available
(17) Degradation temperature	No data available
(18) Viscosity	No data available
(19) M.W	186.21 g/mol

## 10. STABILITY AND REACTIVITY

### (1) Stability

- ☐ Stable under normal temperatures and pressures.

Keep at temperature not exceeding 50°C.

### (2) Possibility of Hazardous Reaction:

- ☐ May generate much heat or decompose violently by heat, impact, friction,etc.

Decomposes on heating or contact with acids.

### (3) Conditions to avoid

- ☐ Do not heat above melting point.
- ☐ Exposure to air or moisture over prolonged periods.

### (4) Materials to Avoid:

- ☐ Strong oxidizing agents

### (5) Hazardous decomposition products

- ☐ Hazardous decomposition products formed under fire conditions.
  - Carbon oxides, Nitrogen oxides (NOx)

## 11. TOXICOLOGICAL INFORMATION

### (1) Information on the likely routes of exposure:

- ☐ Respiratory:
  - No data available
- ☐ Oral:
  - No data available
- ☐ Eyes/Skin:
  - No data available

(2) Delayed and immediate effects and also chronic effects from short and long term exposure:

- ☐ Acute toxicity
  - Oral
    - Rat LD50 : 940 mg/kg
  - Dermal
    - No data available
  - Inhalation
    - No data available
- ☐ Skin corrosion/ irritation
  - Not irritating
- ☐ Serious eye damage / eye irritation
  - May cause slight irritation
- ☐ Respiratory sensitization
  - No data available
- ☐ Skin sensitization
  - No data available
- ☐ Carcinogenicity

	KOSHA	IARC	NTP	OSHA	WISHA	ACGIH
Comp. 1	No data available	Group 3	No data available	No data available	No data available	No data available

- ☐ Germ cell mutagenicity
  - No data available
- ☐ Reproductive toxicity
  - No data available
- ☐ Specific target organ toxicity (single exposure)
  - No data available
- ☐ Specific target organ toxicity (repeated exposure)
  - No data available
- ☐ Aspiration hazard
  - No data available

(3) Calculation the classification of the mixture (acute toxicity estimate calculation etc.):

- ☐ No data available

## 12. ECOLOGICAL INFORMATION

(1) Ecotoxicity (Aquatic and terrestrial where available)

- ☐ Fish:

- No data available
- ☐ Crustacean :
  - No data available
- ☐ Algae:
  - No data available
- (2) Persistence and biodegradability
  - ☐ Persistence : log Kow 1.70
  - ☐ Biodegradability : No data available
- (3) Bioaccumulative potential
  - ☐ No data available
- (4) Mobility in soil
  - ☐ No data available
- (5) Other adverse effects
  - ☐ No data available

### 13. DISPOSAL CONSIDERATIONS

- (1) Disposal methods
  - ☐ Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable.
- (2) Special precautions for disposal:
  - ☐ Dispose of container in accordance with international, federal, state and local requirements.

### 14. TRANSPORT INFORMATION

- (1) UN No: 3224
- (2) UN proper shipping name: SELF-REACTIVE SOLID TYPE C
- (3) Transport hazard class or division: 4.1 Flammable solid
- (4) Packing group (If applicable): -
- (5) Environmental hazards : No data available
- (6) Special safety response for transportation or transportation measure
  - ☐ Fire schedule EmS No. : Not applicable
  - ☐ Spillage schedule EmS No. : Not applicable
  - ☐ Caution on transportation
    - Local transport follows in accordance with Dangerous goods Safety Management Law.
    - Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.

### 15. REGULATORY INFORMATION

(1) ISHL (The industrial Safety and Health Law in Korea):

- ☐ No data available

(2) TCCA (The Toxic Chemical Control Act in Korea):

- ☐ No data available

(3) Dangerous goods Safety Management Law in Korea

- ☐ Group 5, Nitroso compounds 200kg

(4) Waste management regulation in Korea

- ☐ Designated waste

(5) Other regulations:

- ☐ Persistent organic. Pollutants (POPs) management regulation

- Not applicable

- ☐ Information of EU Classification

- EU classification (Classification)

- Not applicable

- EU classification (Risk phrases)

- Not applicable

- EU classification (Safety phrase)

- Not applicable

- ☐ US REGULATIONS

- OSHA regulation (29CFR1910.119)

- Not applicable

- CERCLA section 103 (40CFR302.4)

- Not applicable

- EPCRA section 302 (40CFR355.30)

- Not applicable

- EPCRA section 304 (40CFR355.40)

- Not applicable

- EPCRA section 313 (40CFR372.65)

- Not applicable

- ☐ The Rotterdam Convention substances

- Not applicable

- ☐ The Stockholm Convention substances

- Not applicable

- ☐ Montreal protocol substances

- Not applicable

<b>16. OTHER INFORMATION</b>
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**(1) References**

- ☐ ACGIH
- ☐ CHEMWATCH
- ☐ CHRIS
- ☐ Dolphin MSDS
- ☐ ECOSAR
- ☐ ECOTOX
- ☐ Emergency response guide book
- ☐ EPA IRIS
- ☐ EU directive 67/548
- ☐ HAZARDTEXT
- ☐ IARC
- ☐ ILO-ICSC
- ☐ IPCS
- ☐ IUCLID
- ☐ KOSHANET
- ☐ NCIS
- ☐ NITE
- ☐ NLM
- ☐ NTP
- ☐ OECD SIDS
- ☐ PERPOTEXT
- ☐ QSAR
- ☐ Recommendations on the transport of dangerous goods
- ☐ RTECS
- ☐ TOMES

**(2) Prepare date:** 2010.06.30

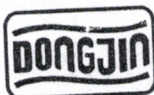
**(3) Revised No. and date**

- ☐ Revised No. : Rev.00
- ☐ Revised Date: 2010.06.30

**(4) Others**

- ☐ Handle with care sufficiently because of danger and hazard assessment are not enough.
- ☐ This MSDS is informed proper precautions for handling our product, and also intended for usual handling.
- ☐ The information contained herein is based on the information available at this point or maker's own knowledge, so this data or evaluation do not any warranty.
- ☐ This can be revised by amendment of law or new knowledge.





**PT. DONGJIN INDONESIA**

Intercon Plaza Blok C No. 16  
Taman Kebon Jeruk - Jakarta 11630  
Telp. : (021) 584-3435, 584-3334, 584-3377  
584-5688, 530-6602, 549-1260  
Fax. : (021) 584-1853

DONG JIN  
O. QA  
PASSED

**ANALYSIS CERTIFICATE**

P.O.NO.: DJ-2084

Serial No. : CFA - 16803

Customer	D J SEMICHEM, INC.		Analysis Date	16, NOV. , 2010	
Product	UNICELL - GP3		Analyst	Name	ADENAN
Total Quantity	4.500 LBS	Total 1 Lot	Sampling Unit	500 GR. / Lot, Random Sampling	
Lot No.	KR22491		Certificate Date	06, DEC. , 2010	
Prod. Date	16, NOV. , 2010		Decision	Passing <input checked="" type="checkbox"/>	Failure <input type="checkbox"/> , Concession <input type="checkbox"/>

No.	Analytical Item	Unit	Specification	Lot				Analytical Method (DJO-FPI-)
				KR22491				
1	Appearance			FINE LEMON YELLOW POWDER				00
2	Decomposition Temp.	°C	197 ~ 203	202				01
3	Gas Evolution Volume	ml / gr	185 ~ 195	194				01
4	Moisture Content	%	0.0 ~ 0.5	0.25				12
5	Ash Content	%	0.0 ~ 0.1	0.01				19
6	Sieve Test ( 100 mesh )	%	0.00 ~ 0.05	NIL				07
7	Oil Content	%	5.5 ~ 6.5	5.7				06
8	Purity	%	92.85 up	94.04				
9	No of Packings ( 100 Lbs x F / D )			45				
10				OK				

# Appendix ; ①

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We DONGJIN, hereby certify that the above statements are true and correct.

06, DEC. , 2010

DONG JIN SEMICHEM CO.,LTD.

*G. W. Na*

G. W. NA / VICE CHAIRMAN

*Hoon Lee*

HOON LEE

Manager of Quality Assurance Dept.  
Dong Jin Chem. Ind.Co.,Ltd.Indonesia