SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product information

Commercial Product Name: Hexadecenylsuccinic Anhydride ASA 100 D
Trade Name: ASA 100 D
CAS 68784-12-3
EU number 272-221-2
REACH# 01-2119533117-46

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

Use of the Substance/Mixture
  Manufacture
  Formulation
  Hydrophobation of paper and board.

Recommended restrictions on use
  Do not use for other purposes than the identified uses.

1.3 Details of the supplier of the safety data sheet

Dixie Chemical
10601 Bay Area Blvd. Pasadena, Texas 77507
Phone: 281-474-3271
Email: msds@dixiechemical.com

REACH ChemAdvice GmbH
Am Marktplatz 5 - 65779 Kelkheim (Taunus) - Germany
Tel.: +49 (0) 6195 96199 14
Fax: +49 (0) 6195 96199 33
E-mail address: rudolf.staab@reach-chemadvice.com

1.4 Emergency telephone number

Information  (281) 474-3271
Chemtrec  (800) 424-9300

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to EU Directives 67/548/EEC or 1999/45/EC
Xi - Irritant; R43 - May cause sensitization by skin contact

**Classification according to EU Directives 1272/2008**

Skin Sens. 1 - H317

2.2 Label elements

**Labeling according to Regulation (EC) 1272/2008**

Signal word: Warning

Hazard pictogram:

GHS07: warning

![Warning symbol]

**Hazard Statement(s):**

H317 May cause and allergic skin reaction

**Precautionary Statement(s):**

P280 Wear protective gloves/protective clothing/eye protection/face protection

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Labeling according to EC Directives (1999/45/EC)**

- **Hazard pictograms:**
  - [Irritant]

- **R-phrase(s):**
  - R43 May cause sensitization by skin contact.

- **S-phrase(s):**
  - S24 Avoid contact with skin.
  - S37 Wear suitable gloves.
  - S60 This material and its container must be disposed of as hazardous waste.

**Hazardous components which must be listed on the label:**

68784-12-3 2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.
[Further information]  :  The product is classified and labeled in accordance with Directive 1999/45/EC.

2.3 Other hazards

None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures  
[Chemical nature of the mixture] : Alkenyl succinic anhydride

<table>
<thead>
<tr>
<th>CAS/EU number/REACH Registration Number</th>
<th>Chemical name of the substance</th>
<th>Concentration</th>
<th>Classification according to Regulation (EU) 1272/2008(CLP)</th>
<th>Classification according to EU Directives 67/548/EEC or 1999/45/EC</th>
</tr>
</thead>
<tbody>
<tr>
<td>68784-12-3 272-221-2 01-2119533117-46</td>
<td>2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.</td>
<td>&gt;94 %</td>
<td>Skin Sens. Category 1,H317</td>
<td>Xi ,R43</td>
</tr>
<tr>
<td>Mixture EU Product</td>
<td>Aerosol OT-SE ULA</td>
<td>&gt;4 %</td>
<td>Skin Irrit. 2 (H315)</td>
<td></td>
</tr>
</tbody>
</table>

Further information  
For the full text of the H-Statements mentioned in this Section, see Section 16.  
For the full text of the R-phrases mentioned in this Section, see Section 16.

This substance is not considered to be persistent, bio-accumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bio-accumulating (vPvB).

4. FIRST AID MEASURES

[4.1 Description of first aid measures]  
Inhalation  
Move to fresh air. Keep patient warm and at rest. If symptoms persist, call a physician.

Skin contact  
Wash off immediately with soap and plenty of water. Take off contaminated clothing and shoes immediately. If symptoms persist, call a physician.

Eye contact  
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Consult a physician.

Ingestion  

Rinse mouth with water. Obtain medical attention.

4.2 Most important symptoms and effects, both acute and delayed
SAP_EHS_1012_012 Hints for physician
Symptoms [: ] No information available.

4.3 Indication of immediate medical attention and special treatment needed, if necessary

5. FIRE-FIGHTING MEASURES
5.1 Extinguishing media
Extinguishing media : Water spray
Carbon dioxide (CO2)
Alcohol-resistant foam
Unsuitable : High volume water jet
Unsuitable extinguishing media

5.3 Special protective actions for fire-fighters
Wear self-contained breathing apparatus and protective suit.

5.4 Specific methods
In the event of fire, cool tanks with water spray. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Contaminated fire extinguishing water must be disposed of in accordance with local regulations.

6. ACCIDENTAL RELEASE MEASURES
6.1 Personal precautions, protective equipment and emergency procedures
For personal protection see section 8.

6.2 Environmental precautions
Try to prevent the material from entering drains or water courses. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up
Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). After cleaning, flush away traces with water.

7. HANDLING AND STORAGE
7.1 Precautions for safe handling
Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. For personal protection see section 8.
7.2 Conditions for safe storage, including any incompatibilities

Avoid moisture. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition.

Incompatible products

Never allow product to get in contact with water during storage.

Materials for packaging

Suitable material:
original or plastic container

Materials to avoid:

Strong oxidizing agents, Hydrolyses in presence of:, Water

Storage stability:

Storage period 12 Months
Storage temperature 10 - 35 °C

7.3 Specific end uses

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Limit Values

DNEL

2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.: End Use: Workers

Exposure routes: dermal

Value:
10 mg/kg bw/day
Acute, systemic effects
End Use: Workers
Exposure routes: Inhalation

Value:
70 mg/m³
Acute, systemic effects
End Use: Workers
Exposure routes: dermal

Value:
0,03 mg/kg bw/day
Long-term exposure - systemic effects
End Use: Workers
Exposure routes: Inhalation

Value:
0,23 mg/m³
Long-term exposure - systemic effects

Following part as example prints PNEC data of components maintained in SAP_EHS_1012_004; if PNEC data of components in SAP_EHS_1012_005 should be printed, please change green parts to SAP_EHS_1012_005

PNEC
2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs. : Fresh water
Value:
0,01 mg/l

Marine water
Value:
0,001 mg/l

Intermittent releases, aqua
Value:
0,1 mg/l

Fresh water sediment
Value:
24,1 mg/kg dw

Marine sediment
Value:
2,41 mg/kg dw

Soil
Value:
19,6 mg/kg dw

STP
Value:
8 mg/l
8.2 Exposure controls

8.2.1 Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Avoid contact with skin, eyes and clothing. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation.

8.2.2 Individual protection measures, such as personal protective equipment

Hand protection

Glove material: Nitrile rubber
Glove material: Neoprene gloves
Glove material: PVC

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection
Safety glasses with side-shields

Skin and body protection
Protective clothing. Safety shoes

Respiratory protection
In case of inadequate ventilation wear respiratory protection. Respirator with A-P2 filters.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>General Information (appearance, odor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
</tr>
<tr>
<td>Color</td>
</tr>
<tr>
<td>Odor</td>
</tr>
</tbody>
</table>

Important health safety and environmental information

Boiling Point: N.E.
Melting Point: N.E.
Volutility/Vol (%): N.E.
Vapor Pressure (mm Hg): N.E.
Vapor Density (Air = 1): ca. 0,96 g/cm³ (20 °C)
Solubility in H₂O: Reacts slowly with water.
Specific Gravity \((H_2O = 1)\): \(0.958\) @ \(25^\circ C\)
Evap. Rate (Butyl Acetate = 1): \(<1\)
Flash Point: \(206^\circ C\) (1.013 hPa,)
Lower Explosive Limit: N.E.
Upper Explosive Limit: N.E.
Auto ignition Temperature: \(330^\circ C\) (1.013 hPa)
Viscosity, dynamic \(<250\) mPa.s (25 °C)

9.2 Other data
None

10. STABILITY AND REACTIVITY
10.1 Reactivity
No data available

10.2 Chemical stability
Stable under normal conditions.

10.3 Possibility of hazardous reactions

Hazardous reactions : None known.

10.4 Conditions to avoid

Conditions to avoid : Protect from moisture.
High temperatures.

10.5 Incompatible materials

Materials to avoid : Strong oxidizing agents
Hydrolyses in presence of:
Water

10.6 Hazardous decomposition products

Hazardous decomposition products : Thermal decomposition can lead to release of irritating gases and vapors.
carbon oxides (COx)

Thermal decomposition : Note: no data available

11. TOXICOLOGICAL INFORMATION
11.1 Information on toxicological effects
Acute toxicity

SDS ASA 100 D
Acute toxicity for components section begins here

2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.
LD50/Oral/rat/female: > 2.000 mg/kg
LD50/Dermal/rat/male and female: > 2.000 mg/kg

Irritation and corrosion

Irritation and corrosion for components begins here

2, 5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

Skin:
No skin irritation

Eyes:
rabbit /OECD Test Guideline 405: No eye irritation

Sensitization

May cause sensitization by skin contact.

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

Guinea pig/OECD Test Guideline 406 May cause sensitization by skin contact.

Long term toxicity
Long term toxicity for components begins here

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

Repeated dose toxicity:
Oral/rat/male and female: NOAEL: 100 mg/kg

Mutagenicity

Ames test/OECD Test Guideline 471: Result: negative
Metabolic activation: with and without

In vitro gene mutation study in mammalian cells/OECD TG 476: Result: negative
Metabolic activation: with and without

Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Reproductive toxicity rat male and female/OECD Test Guideline 422: NOAEL: 1.000 mg/kg
NOAEL F1:

12. ECOLOGICAL INFORMATION
12.1 Ecotoxicity effects
Aquatic toxicity
Remarks: This material is not classified as dangerous for the environment.
Aquatic toxicity for components begins here

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:
LC50/96 h
/Leuciscus idus (Golden orfe)
/semi-static test/OECD Test Guideline 203: 10 mg/l
EC50/48 h

/Daphnia magna (Water flea)
/semi-static test/OECD Test Guideline 202: 36 mg/l
EC50/72 h

/Desmodesmus subspicatus (green algae)
/static test/OECD Test Guideline 201:
46.9 mg/l

Toxicity to other organisms

Toxicity to other organisms for components:

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

no data available

12.2 Persistence and degradability
Chemical degradation

Biological degradability for the components

Biological degradability:
2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.: 
Closed Bottle test/OECD Test Guideline 301 D/28 d: 60 %
Readily biodegradable

Chemical degradation for components
Chemical degradation:
2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:
Hydrolyses in water.

12.3 Bioaccumulative potential
Bioaccumulative potential of the components

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

Bioconcentration factor (BCF)
/calculated:
1.450

Not applicable because of rapid hydrolysis. Bioaccumulation is unlikely.
Partition coefficient: n-octanol/water:
not applicable

12.4 Mobility in soil
Mobility

Vapor pressure:
< 0,000001 hPa
( 20 °C)

Water solubility:
not applicable

Distribution in environment
Mobility of the components

2,5-Furandione, dihydro-, mono-C15-20-alkenyl derivs.:

Vapor pressure:
0,000001 hPa
( 20 °C)

Water solubility:
not applicable

Surface tension:
Based on the chemical structure, Surface activity is not to be expected.

Adsorption and/or desorption:
not applicable

12.5 Results of PBT and vPvB assessment
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT). This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

Information refers to the main component.

12.6 Other adverse effects
no data available
Other effects of the components

13. DISPOSAL CONSIDERATIONS
13.1 Waste treatment methods
Product
In accordance with local and national regulations. The product should not be allowed to enter drains, water courses or the soil.

14. TRANSPORT INFORMATION
14.1 UN number
Not Classified hazardous

14.2 Land transport
Not classified as dangerous in the meaning of transport regulations.

14.3 Sea transport
Not classified as dangerous in the meaning of transport regulations.

14.4 Air transport
Not classified as dangerous in the meaning of transport regulations.

14.5 Special precautions for user
None

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

BK19102009 output of candidate list substances
WHMIS -D2B: Toxic Material Causing Other Toxic Effects

WGK Classification: Class 1 Low Hazards to Water

United States Regulations
Hazard Categories Under Title III: Acute.
Section 302 Extremely Hazardous Substances: Not Listed.
Section 313 Toxic Chemicals: Not Listed.
CERCLA RQ: Not Listed.
TSCA 12(b) Export Notification: Not Listed
California Proposition 65: Not Listed

**Australian Regulations:**
All components are listed on the AICS

**Korean Regulations:**
All components are NOT listed on the ECL

**Japanese Regulations:**
All components are NOT listed on the ENCS

**Canadian Regulations:**
All substances are listed on the DSL, or are exempt from reporting

**European Regulations:**
All components are listed on the EINECS

**Philippine Regulations:**
All components are NOT listed on the PICCS

**New Zealand Regulations:**
All components are NOT listed on the NZIoC

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

**16. OTHER INFORMATION**
Date Revised 12/10/2013

Full text of H-Statements referred to under section 3.

H317 May cause an allergic skin reaction.

Text of R-phrases mentioned in Section 3

R43 May cause sensitization by skin contact.

Training advice
Read the safety data sheet before using the product.

Further information
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Sources of key data used to compile the Safety Data Sheet
Regulations, databases, literature, own tests.
Additions, Deletions, Revisions
Relevant changes have been marked with vertical lines.

HMIS Hazard Rating
Health: 2
Fire: 1
Reactivity: 1

4 = Extreme
3 = High
2 = Moderate
1 = Slight

PPE rating to be supplied by user depending on use conditions.