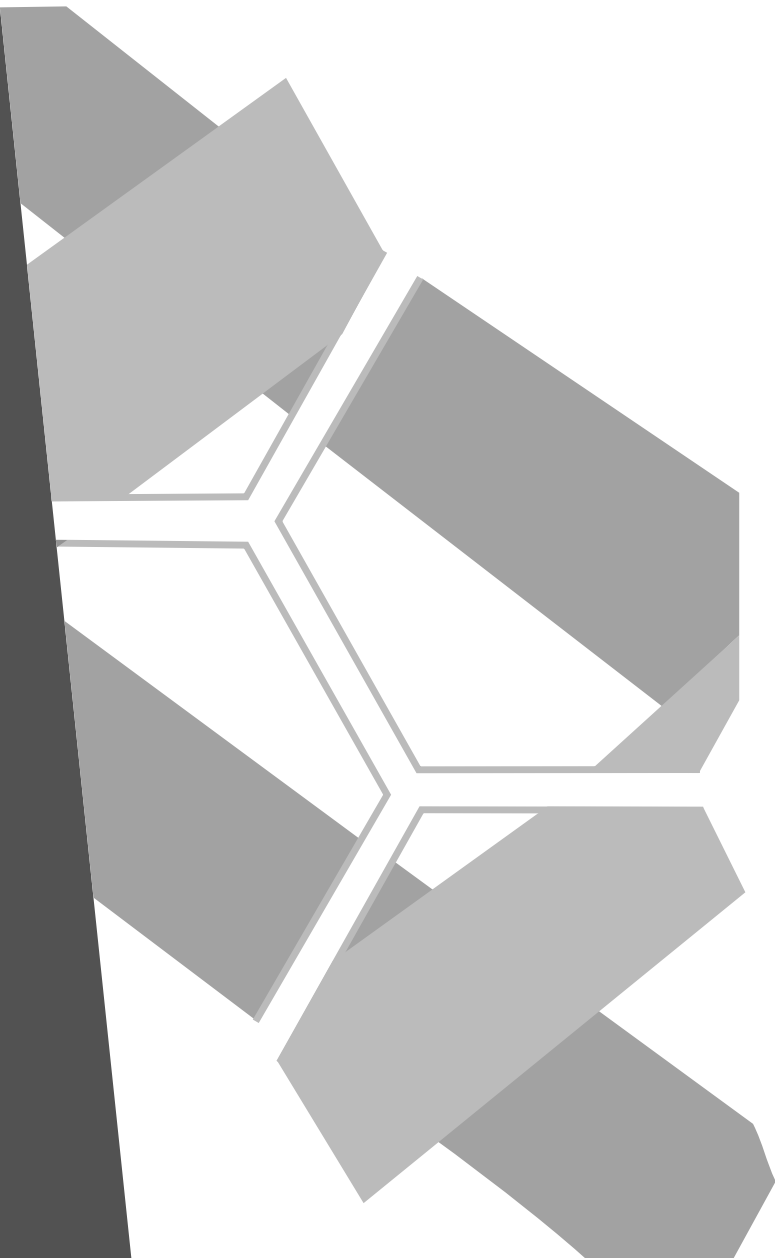




Bioingentech Ltd.
G i n e e r i n g



Bioingentech Ltd.





!"# \$ " %
& " '() ! * " + "

Substance Number

Description

Symbols

)

" , " "

&

)

#!* -

)

!. " "

)

"

)

'(/ 0

)

1! " - "

)

(2! - !. "

)

"! "

)

!. " "

17H ! " " "

Engineering Controls: E H!"E" " " \$ \$ " " D" 4 " "
*E 4 >" "E" .E! 7! " " -> " " *"- > " H.
" " > D " " " "

Exposure Limit Values

General Information

" 4 " - " E " -

Stability and Reactivity:

Material Safety Data Sheet

Trade name: Beta-Mercaptoethanol

; "

Waste Information: @ ".! "4 * >" * "" E . " "

\$! "

Waste Stream: (" E 4

& " * . "

" "# \$ " * " " " " * . "

RID/ADR Non-hazardous for road transport.
--

IMDG Non-hazardous for sea transport.
--

IATA Non-hazardous for air transport.
--

' \$! "

Sara

Section 355 (extremely hazardous substances):

(* " \$ " " "

Section 313 (Specific toxic chemical listings):

(* " \$ " " "

TSCA (Toxic Substances Control Act):

) \$ " " "

Proposition 65

Chemicals known to cause cancer:

(* " \$ " " "

Chemicals known to cause reproductive toxicity for females:

(* " \$ " " "

Chemicals known to cause reproductive toxicity for males:

(* " \$ " " "

Chemicals known to cause developmental toxicity:
--

(* " \$ " " "

Material Safety Data Sheet

Trade name: Beta-Mercaptoethanol

Carcinogenicity categories

EPA (Environmental Protection Agency) (* " \$ " ")
IARC (International Agency for Research on Cancer) (* " \$ " ")
NTP (National Toxicology Program) (* " \$ " ")
TLV (Threshold Limit Value established by ACGIH) (* " \$ " ")
MAK (German Maximum Workplace Concentration) (* " \$ " ")
NIOSH-Ca (National Institute for Occupational Safety and Health) (* " \$ " ")
OSHA-Ca (Occupational Safety & Health Administration) (* " \$ " ")

Product related hazard informations:

84 E " \$ * "- \$! " > \$ \$. \$ " "E G !."

National regulations:

Water hazard class: 1 - " G ! * > "

8" * . "

& * . " 4 ! " D > \$ 0 > E " " " " " \$! "
* - * ! " * " ! " " 4 \$ - E " " ! " " \$! "
; " " ! \$, ; 5
Bioingentech Ltd.

Material Safety Data Sheet

3 " * " * !4 "

Trade name: #! ** -
) " !.4 5)
) " " * " !4 " 6 " " 24 " - .
 , ! * " ! 6 ! 5
Bioingentech Ltd.

Emergency Information:
 >>> 4 \$ " . * ?4 \$ " .
 2

. " 6 ; " . "

Hazardous/Non-hazardous Components

Chemical Name	CAS#	Weight %
& - . ! > " \$! 5	!	

0 G " * "

Emergency Overview

0 . * ! * > >
 3 " " \$ " - D
 3 " " \$ " D

Principle Routes of Exposure/ Potential Health effects

Eyes: 3 " " \$ " -
Skin: 3 " " \$ " D . " * " ! " . - 4 4 4 " " 4 - " ! \$
 " D
Inhalation , - ! " " * " - " "
Ingestion 0 . * ! * > >

Specific effects

Carcinogenic effects: (* . " E 4
Mutagenic effects: (* . " E 4
Reproductive toxicity: (* . " E 4
Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

HMIS

0 "
 ' " E "-
 / .. 4 "-

/ " . !

Skin contact: @ ** .. " -> " "- * > "
Eye contact: ' .. "-> " "- * > " ! " - * " " . ! "
Ingestion: (E \$ E "- \$ 4- . ! " " ! ! " - * " " . ! "
Inhalation: , E " *
Notes to physician: & " - . " -

Material Safety Data Sheet

Trade name: Buffer lysis

/ * \$ " \$. !

Suitable extinguishing media: @ " - 4 H 8 / . & ! " " * .. 4
 Special protective equipment for firefighters: @ * " 4 " \$ " ! " " E ! "

) " . !

Personal precautions: = " " E F! . "
 Methods for cleaning up: D! > " " 4 4 " . "

0 \$ " \$

Handling: (\$ E F!
 Storage: + - 4 " "

I 7H ! " " "

Occupational exposure controls
 Exposure limits

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
& - . ! > " \$! 5				

Engineering measures 7 ! F! " E " " - *

Personal protective equipment

Respiratory protection: 3 * ! * " E " " > ! " 4 " - F! . "

Hand protection: " " E \$ E

Eye protection: * "- \$ > "

Skin and body protection: 2 \$ "> \$ " " " E " " \$

Hygiene measures: 0 > " \$! " - \$ * "- "

Environmental exposure controls: E " ! * . " \$

- . "

General Information

Form:	2 F!
-------	------

Important Health Safety and Environmental Information

Boiling point/range	°C (" E 4	°F (" E 4
Melting point/range	°C (" E 4	°F (" E 4
Flash point	°C (" E 4	°F (" E 4
Autoignition temperature	°C (" E 4	°F (" E 4
Oxidizing properties	(* . " E 4	
Water solubility	! 4	

" 4 "- " E "-

Stability: " 4 ! . "
 Materials to avoid: (* . " E 4
 Hazardous decomposition products: (* . " E 4
 Polymerization: 0 G ! -. " " !

Material Safety Data Sheet

Trade name: Buffer lysis

&H \$ * ."

Acute toxicity

Chemical Name	LD50 (oral, rat/mouse)	LD50 (dermal, rat/rabbit)	LC50 (inhalation, rat/mouse)
& - . ! > " \$! 5	(" E 4	(' E 4	(" E 4

Principle Routes of Exposure/

Potential Health effects

Eyes: 3 " " \$ " -

Skin: 3 " " \$ " D " " * " ! " - 4 4 4 " " 4 - " ! \$ " D

Inhalation: , - ! " " * " " _ " " "

Ingestion: 0 . ! * > >

Specific effects

Carcinogenic effects: (* . " E 4

Mutagenic effects: (* . " E 4

Reproductive toxicity: (* . " E 4

Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

7 \$ * ."

Ecotoxicity effects: (* . " E 4

Mobility: (* . " E 4

Biodegradation: (* . " E 4

Bioaccumulation: (* . " E 4

; "

; * > " \$! "

& " * ."

" "# \$ " * " " " " * ."

RID/ADR
Non-hazardous for road transport.

IMDG
Non-hazardous for sea transport.

IATA
Non-hazardous for air transport.

<p>TLV (Threshold Limit Value established by ACGIH) (* " \$ " ")</p>
<p>MAK (German Maximum Workplace Concentration) (* " \$ " ")</p>
<p>NIOSH-Ca (National Institute for Occupational Safety and Health) (* " \$ " ")</p>
<p>OSHA-Ca (Occupational Safety & Health Administration) (* " \$ " ")</p>

Product related hazard informations:

84 E " \$ * "- \$! " > \$ " \$. \$ " "E G !. "

National regulations:

Water hazard class: @ " G * . "5 \$"- G ! * > "

Material Safety Data Sheet

!raW, nae:

Material

Material Safety Data Sheet

Trade name: Sodium Citrate

& H \$ * . "

Cancer Lists		NTP Carcinogen		
Ingredient Name	CAS#	Known	Anticipated	IARC Category
! . " "		(((

7 \$ * . "

Environmental Fate: (* . " * !
Environmental Toxicity: (* . " * !

; "

@ " E " 4 E * E - - \$! 4 . \$ " > " " \$ " = E > "
" " " > "\$! " " " * * * . * \$! " " ; " * \$ " = " !!
" " " > " * " " " F! . "

& " * . "

" # \$ " * " " " " * . "

RID/ADR Non-hazardous for road transport.
IMDG Non-hazardous for sea transport.
IATA Non-hazardous for air transport.

' \$! "

Sara

Section 355 (extremely hazardous substances): (* " \$ " " "
Section 313 (Specific toxic chemical listings): (* " \$ " " "
TSCA (Toxic Substances Control Act):) \$ " "

Material

TLV (Threshold Limit Value established by ACGIH)

(* " \$ " "

MAK (German Maximum Workplace Concentration)

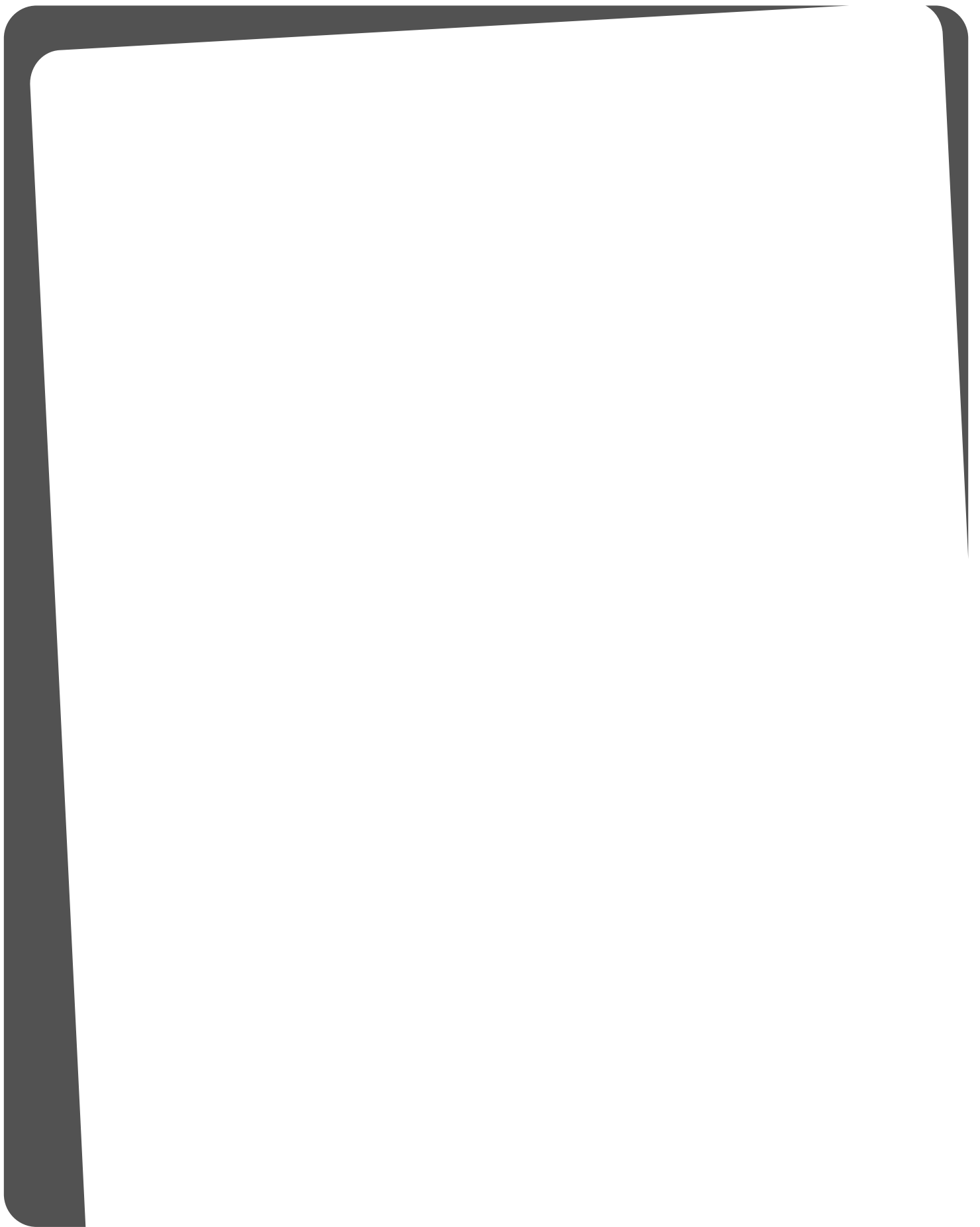
(* " \$ " "

NIOSH-Ca (National Institute for Occupational Safety and Health)

(* " \$ " "

OSHA-Ca (Occupational Safety & Health Administration)

(* " \$ " "



Material Safety Data Sheet

Trade name: Citric acid

/ * \$ " \$. !

Flammability of the Product: - 4 .4! " 4 " \$ " . " !
Auto-Ignition Temperature: J | J/
Flash Points: (" E 4
Flammable Limits: 28@7'5 I+\$6, ;!" = 7'5 +\$6, ;!"
Products of Combustion: & ! " 4 H 8 8
Fire Hazards in Presence of Various Substances: \$" - * .. 4 " * .. 4 * "
(* .. 4 * D
Explosion Hazards in Presence of Various Substances: \$" - H E * * .
D (H E * D
Fire Fighting Media and Instructions: ,)22/3'75 = ;: . - > \$ * . ; " ! > " K "
2)'17/3'75 = > " - * \$ * . ; " ! > " K "
Special Remarks on Fire Hazards:) > " . " \$ * 4 " E " . " ! "
Special Remarks on Explosion Hazards: / ! " ! ** " " " " ! " "

) " . !

Small Spill:
= " \$ > " " " ! " " ! * E " > " " / " " \$ 4-
F! . \$ > " " " ! " " ! * E " > " " / " " \$ 4-
Large Spill:
" " D * > " ! " D ; "\$ > " " ; " ! " . " = > " " - "
! E " E " " - " > 4 . " * 9 D * 7 . " \$ " - "
! " * " " / " \$ 4- \$ > " " . " ! * \$ " - "
> " E ! " " ! \$ " " - - .

0 \$ " \$

Precautions:
+ > - * " " + > - * " ! " * \$ " 1 ! F! " " \$ " ; " "
\$ " ; " 4 " ") E " " " > " " @ " ! " 4 " " E " " \$ 3 * ! ** "
E " " > ! " 4 " - F! " 3 * \$ " D . " E " " > " "
" " 4 + > - * " " 4 ! " H G \$ \$ " ! \$ \$ " . " D
Storage: + " "\$ - + " > E " " \$ \$ " . " D

17H ! " " "

Engineering Controls:
= " ! " H ! " E " " \$ " \$ " " D 4 E 4 >
.. H ! " " 3 * ! " \$ " ! " * ! . " ! E " " " D H ! "
4 " " 4 > " H ! . .
Personal Protection:
* - \$ 24 " 1 E . E ! ; ! " " # ! " ! E 6 " * "
F! E " & ! " " ! 4 ! * " " > H ! H " ..
H ! " " ! " " \$ \$ " F! " E " " * 4
Personal Protection in Case of a Large Spill:
" \$\$\$ / ! " ! " " # " 1 E) * " 4 " \$ " ! ! 4 ! "
" E " " * " " ! " ! \$ \$ " " E " \$. \$ " 4 ! ** " 9 ! " "
#7/87 \$ " ! "
Exposure Limits:
(H ! \$! E 4 " 4
) 130 (380 80) E " E H ! " " * " ! "
& H ! " " \$ E 4 > * " ! " " " > * 5
) 1305 . \$ 6 . & @) & " 3 4 * " 9 . \$ 6 . & @) ' 4 * "
80)5 . \$ 6 . & @) & " ! " 9 . \$ 6 . & @) ' 4 / "

Material Safety Data Sheet

Material Safety Data Sheet

Trade name: Citric acid

' \$! " " !

Proposition 65

Chemicals known to cause cancer: (* " \$ " ")
Chemicals known to cause reproductive toxicity for females: (* " \$ " ")
Chemicals known to cause reproductive toxicity for males: (* " \$ " ")
Chemicals known to cause developmental toxicity: (* " \$ " ")

Carcinogenicity categories

EPA (Environmental Protection Agency) (* " \$ " ")
IARC (International Agency for Research on Cancer) (* " \$ " ")
NTP (National Toxicology Program) (* " \$ " ")
TLV (Threshold Limit Value established by ACGIH) (* " \$ " ")
MAK (German Maximum Workplace Concentration) (* " \$ " ")
NIOSH-Ca (National Institute for Occupational Safety and Health) (* " \$ " ")
OSHA-Ca (Occupational Safety & Health Administration) (* " \$ " ")

Product related hazard informations:

84 E " \$ * "- \$! " > \$! " \$. \$ " "E G !."

National regulations:

Water hazard class: 1 - " G ! * > "

8" * . "

& * . " 4 ! " D > \$ 0 > E " " "!" \$! "
* - * ! " * "!" " "4 \$ -E " "!" " \$! "
: " : " ! \$, ; 5
Bioingentech Ltd.



3 " * " * !4 "

Trade name: RNase Free H2O

) " !.4 5)
) " * " !4 " 6 " " 24 " - .
 , !* " ! 6 ! 5
 Bioingentech Ltd.

Emergency Information:

>>> 4 \$ " . * ?4 \$ " .
 2

. " 6 ; " . "

Chemical Name	CAS#	Weight %
@ "		

0 G " * "

Emergency Overview

& ! " " !4 " > " " \$ E " " " 4 G ! " "

**Principle Routes of Exposure/
Potential Health effects**

Eyes: (- " "
 Skin: (" " \$ " " D
 Inhalation: (" . 4
 Ingestion: (* . " E 4

Specific effects

Carcinogenic effects: (* . " E 4
 Mutagenic effects: (* . " E 4
 Reproductive toxicity: (* . " E 4
 Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

HMIS

0 "
 ' " E "-
 / .. 4 "-

/ " . !

Skin contact: (" G !
 Eye contact: (" G !
 Ingestion: (" G !
 Inhalation: (" G !
 Notes to physician: (* . " E 4

/ * \$ " \$. !

Suitable extinguishing media: & ! " " * .. 4
 Special protective equipment for firefighters: & ! " " * .. 4

Material Safety Data Sheet

Trade name: RNase Free H2O

) " . !

Personal precautions: (" 4
Methods for cleaning up: (" 4

0 \$ " \$

Handling: (\$ E F!
Storage: + - 4 "

17H ! " " "

Exposure limits

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
@ "				

Engineering measures (!" F!

Personal protective equipment

Respiratory protection: (" "E F! . " F!

Hand protection: (" "E F! . " F!

Eye protection: (" G !

Skin and body protection: (" G !

Hygiene measures: 0 >" \$!" -\$ *- "

Environmental exposure controls: (E . " !" F!

- . " " !

General Information

Form	2 F!
Boiling point/range	°C °F
Melting point/range	°C °F
Flash point	°C (" E 4 °F (" E 4
Autoignition temperature	°C (" E 4 °F (" E 4
Oxidizing properties	(* . " E 4
Water solubility	!4

" 4 "- " E "-

Stability: " 4

Materials to avoid: @ " "E @ " "E F!

Hazardous decomposition products: (! . !

Polymerization: 0 G ! -. " !

Material Safety Data Sheet

Trade name: RNase Free H2O

&H \$ * . "

Acute toxicity

Chemical Name	LD50 (oral, rat/mouse)	LD50 (dermal, rat/rabbit)	LC50 (inhalation, rat/mouse)
@ "	(" E 4	(" E 4	(" E 4

Principle Routes of Exposure/

Potential Health effects

Eyes: (- " "

Skin (" " \$ " " D

Inhalation: (" 4

Ingestion: (* . " E 4

Specific effects

Carcinogenic effects: (* . " E 4

Mutagenic effects: (* . " E 4

Reproductive toxicity: (* . " E 4

Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

7 \$ * . "

Ecotoxicity effects " !4" D > " 4 G ! " " E . " " \$ 4 > "

> " " " " " " "

Mobility . " - !4

Biodegradation 3 " - 4 \$ 4

Bioaccumulation ; " 4 !!"

; "

; * > " \$! "

& " * . "

" "# \$ " * " " " " * . "

RID/ADR

Non-hazardous for road transport.

IMDG

Non-hazardous for sea transport.

IATA

Non-hazardous for air transport.

Material Safety Data Sheet

Trade name: RNase Free H2O

' \$! "

Sara

Section 355 (extremely hazardous substances):

(* " \$ " "

Section 313 (Specific toxic chemical listings):

(* " \$ " "

TSCA (Toxic Substances Control Act):

) \$ " "

Proposition 65

Chemicals known to cause cancer:

(* " \$ " "

Chemicals known to cause reproductive toxicity for females:

(* " \$ " "

Chemicals known to cause reproductive toxicity for males:

(* " \$ " "

Chemicals known to cause developmental toxicity:

(* " \$ " "

Carcinogenicity categories

EPA (Environmental Protection Agency)

(* " \$ " "

IARC (International Agency for Research on Cancer)

(* " \$ " "

NTP (National Toxicology Program)

(* " \$ " "

TLV (Threshold Limit Value established by ACGIH)

(* " \$ " "

MAK (German Maximum Workplace Concentration)

(* " \$ " "

NIOSH-Ca (National Institute for Occupational Safety and Health)

(* " \$ " "

OSHA-Ca (Occupational Safety & Health Administration)

(* " \$ " "

Product related hazard informations:

84 E " \$ * "- \$! " > \$. \$ " "E G ! ."
& ! " " !4K " " * " \$! " \$ " "E G ! ."

National regulations:

Water hazard class: 1 - " G ! * > "

Material Safety Data Sheet

Trade name: RNase Free H2O

8" * ."

& * ." 4 ! "D > \$ 0 > E " " "!" \$! "
* - * ! " * "!" " "4 \$ - E " "!" "
; " : " ! \$, ; 5
Bioingentech Ltd.

Material Safety Data Sheet

3 " * " * !4 "

Trade name: Guanidine isothiocyanate

} " !.4 5)
 } " * " !4 " 6 " " 24 " - .
 , !* " ! 6 ! 5
 Bioingentech Ltd.

Emergency Information:

>>> 4 \$ " . * ?4 \$ " .
 2

. " 6; " . "

Chemical Name	CAS#	Weight %
1! " - "		

0 G " * "

Emergency Overview

0 . * ! * > >
 3 " " \$ " - D
 3 " " \$ " D

**Principle Routes of Exposure/
 Potential Health effects**

Eyes: 3 " " \$ " -
 Skin: 3 " " \$ " D
 Inhalation , - ! " " * " - " "
 Ingestion 0 . * ! * > >

Specific effects

Carcinogenic effects: (* . " E 4
 Mutagenic effects: (* . " E 4
 Reproductive toxicity: (* . " E 4
 Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

HMIS

0 "
 ' " E "-
 / .. 4 "-

/ " . !

Skin contact @ ** .. " -> " "- * > "
 Eye contact ' " ! \$ -> " "- * > " ! " -
 Ingestion (E \$ E "- \$ 4 - ! " " ! !
 Inhalation , E " *
 Notes to physician & " - . " -

/ * \$ " \$. !

Suitable extinguishing media: @ " - 4 H 8 / . ; - >
 Special protective equipment for firefighters: @ * " 4 " \$ " ! " " E ! "

Material Safety Data Sheet

Trade name: Guanidine isothiocyanate

) " . !

Personal precautions: = " " E F! . "
 Methods for cleaning up: D! > " " 4 4 " . "

0 \$ " \$

Handling)E " ">" D -
 Storage + - 4 "

I 7H ! " " "

Exposure limits

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
1! " - "				

Engineering measures: 7 ! F! " E " " - *

Personal protective equipment

Respiratory protection: 3 !** " E " " > !"4 " - F! . "

Hand protection: " " E \$ E

Eye protection: * "- \$ > "

Skin and body protection: 2 \$ "> \$ " " E " " \$

Hygiene measures: 0 > " \$! " - \$ * "- "

Environmental exposure controls: E " !"* . " \$

General Information

Form:	2 F!
-------	------

Important Health Safety and Environmental Information

Boiling point/range	°C (" E 4	°F (" E 4
Melting point/range	°C (" E 4	°F (" E 4
Flash point	°C (" E 4	°F (" E 4
Autoignition temperature	°C (" E 4	°F (" E 4
Oxidizing properties	(* . " E 4	
Water solubility	(" E 4	

" 4 "- " E "-

Stability: " 4

Materials to avoid: (* . " E 4

Hazardous decomposition products: (* . " E 4

Polymerization: 0 G ! - . " " !

Material Safety Data Sheet

Trade name: Guanidine isothiocyanate

&H \$ * ."

Acute toxicity

Chemical Name	LD50 (oral, rat/mouse)	LD50 (dermal, rat/rabbit)	LC50 (inhalation, rat/mouse)
& - . ! > " \$! 5	(" E 4	(" E 4	(" E 4

Principle Routes of Exposure/

Potential Health effects

Eyes: 3 " " \$ " -

Skin: 3 " " \$ " D " " * " ! " - 4 4 4 " " 4 - " ! \$ " D

Inhalation: , - ! " " * " " _ " " " "

Ingestion: 0 . * ! * > >

Specific effects

Carcinogenic effects: (* . " E 4

Mutagenic effects: (* . " E 4

Reproductive toxicity: (* . " E 4

Sensitization: (* . " E 4

Target Organ Effects: (* . " E 4

7 \$ * ."

Ecotoxicity effects (* . " E 4

Mobility (* . " E 4

Biodegradation 3 " - 4 \$ 4

Bioaccumulation ; " 4 ! ! " "

; " "

; * > " \$! "

& " * ."

" "# \$ " * " " " " * ."

RID/ADR

Non-hazardous for road transport.

IMDG

Non-hazardous for sea transport.

IATA

Non-hazardous for air transport.

Material Safety Data Sheet

Trade name: Guanidine isothiocyanate

' \$! "

Sara

Section 355 (extremely hazardous substances):

(* " \$ " "

Section 313 (Specific toxic chemical listings):

(* " \$ " "

TSCA (Toxic Substances Control Act):

) \$ " "

Proposition 65

Chemicals known to cause cancer:

(* " \$ " "

Chemicals known to cause reproductive toxicity for females:

(* " \$ " "

Chemicals known to cause reproductive toxicity for males:

(* " \$ " "

Chemicals known to cause developmental toxicity:

(* " \$ " "

Carcinogenicity categories

EPA (Environmental Protection Agency)

(* " \$ " "

IARC (International Agency for Research on Cancer)

(* " \$ " "

NTP (National Toxicology Program)

(* " \$ " "

TLV (Threshold Limit Value established by ACGIH)

(* " \$ " "

MAK (German Maximum Workplace Concentration)

(* " \$ " "

NIOSH-Ca (National Institute for Occupational Safety and Health)

(* " \$ " "

OSHA-Ca (Occupational Safety & Health Administration)

(* " \$ " "

Product related hazard informations:

84 E " \$ * "- \$! " > \$. \$ " "E G !..
& ! " " !4K " " * " \$! " \$ " "E G !..

National regulations:

Water hazard class: 1 - " G ! * > "

Material Safety Data Sheet

Trade name: Guanidine isothiocyanate

8" * ."

& * ." 4 ! "D > \$ 0 > E " " "!" \$! "
* - * ! " * "!"
; " : " ! \$, ; 5
Bioingentech Ltd.

Material Safety Data Sheet

3 " * " * !4 "

Trade name: N-Lauroyl Sarcosine Sodium Salt

) " !.4 5)
 } " " * " !4 " 6 " " 24 " - .
 , !* " ! 6 ! 5
 Bioingentech Ltd.

Emergency Information:

>>> 4 \$ " . * ?4 \$ " .
 2

. " 6; " . "

Chemical Name	CAS#	Weight %
(2! - !. "		O

0 G " * "

EMERGENCY OVERVIEW: , - ! D " " 6 . " "

Principle routes of exposure: D

Inhalation: , - ! " " * " " - " "

Ingestion: , - 4 . ! * > >

Skin contact: , - ! \$ D "

Eye contact:)E " ">" -

Statements of hazard (,):)=7)227'13 +3('7) &38(

Statement of Spill or Leak - ANSI Label 7 . " \$ " !)4 4 6 " >" "

. " \$ E . ! " & " " / \$! ! >" - "

E * ! E " ! ** . " \$ >" > - >

/ " . !

General advice: 3 " * " *-!* !> D. E .. " - >" 4

> 4

Inhalation: , E " * " - " - " - " - "

Skin contact: ' .. " ->" " - * >" " D. E

Ingestion: ; " ! E . " \$ >" ! " E " ->" " - * >" D. E

Eye contact: 3 " * " ">" - .. " ->" " - * >" D. E

Protection of first-aiders: (* . " E 4

Medical conditions aggravated by exposure: (D >

/ * \$ " \$. !

Suitable extinguishing media: = - . 8 >" - Q Q* .

Specific hazards: #! \$! " " * !.

Unusual hazards: (D >

Special protective equipment for firefighters:) - * > * " 4 " \$ " !

! . , 0)6(38 0 E F! E "

* ! " " E \$

Specific methods: @ " . " . - 4 ! " "

Flash point: (" " .

Autoignition temperature: (" " .

NFPA rating:

(/) 0 " 5

(/)/ .. 4 "-5

(/)' " E "-5

Material Safety Data Sheet

Trade name: N-Lauroyl Sarcosine Sodium Salt

) " . !

Personal precautions: = " " E F! . "
 Environmental precautions: E " ! " * . " \$
 Methods for cleaning up: > ! E " ! " 4 " *

0 \$ " \$

Storage:
 '88, &7, 7')&='7
 ;73)&7
 Handling: = - E > " " H ! " E " "
 Safe handling advice: @ " " E F! . "
 Incompatible products: 8H \$ " ! - * .. 4 !"

! 7H ! " " "

Exposure limits

Chemical Name	OSHA PEL (TWA)	OSHA PEL (Ceiling)	ACGIH OEL (TWA)	ACGIH OEL (STEL)
! " - "				

Engineering measures: 7 ! F! " E " " - *

Personal protective equipment

Respiratory protection: 3 * ! ** " E " " > ! " 4 " - F! . "
 Hand protection: " " E \$ E
 Eye protection: * "- \$ > "
 Skin and body protection: 2 \$ "> \$ " " " E " "\$
 Hygiene measures: 0 > " \$! " - \$ * "- "
 Environmental exposure controls: E " ! " * . " \$

- . "

Physical state	>
Formula	0 (8 RS (
Molecular weight	
Melting point/range	(" E 4 " " " .
Boiling point/range	(" E 4 " " " .
Density	(" E 4
Vapor pressure	(" E 4
Evaporation rate	(" E 4
Vapor density	(" E 4
Solubility (in water)	!4
Flash point	(" " .
Autoignition temperature	(" " .

Material Safety Data Sheet

Trade name: N-Lauroyl Sarcosine Sodium Salt

" 4 " - " E " -

Stability: " 4 ! .. " \$ "
 Polymerization: (! " . \$ "
 Hazardous decomposition products: (" \$ H (8H6.. 6(!. H (8
 Materials to avoid: " \$ H \$ \$ "
 Conditions to avoid: 7H ! " . " ! E \$

& H \$ * . "

Acute toxicity

Chemical Name	LD50 (oral,rat/mouse)	LD50 (dermal,rat/rabbit)	LC50 (inhalation,rat/mouse)
& - . ! > " \$! 5	(" E 4	(" E 4	(" E 4

Chronic toxicity: H ! . - ! ! E . " \$ \$ H ! !

Local effects: - . * E H ! . - 4 GG " !

Specific effects: , - ! . " " E - " . " .

Primary irritation: (" E 4 " ! " " *

Carcinogenic effects: (" E 4 " ! " " *

Mutagenic effects: (" E 4 " ! " " *

Reproductive toxicity: (" E 4 " ! " " *

7 \$ * . "

Mobility: (" E 4

Bioaccumulation: (" E 4

Ecotoxicity effects: (" E 4

Aquatic toxicity: , - ! \$ " . E ** " " F ! " E . "

Components

(2)='8:2)' 8 3(7
8;3=,)2&

U.S. DOT - Appendix B -
Marine Pollutant
(" 2 "

U.S. DOT - Appendix B -
Severe Marine Pollutants
(" 2 "

United Kingdom -
The Red List:
(" 2 "

Components

(2)='8:2)' 8 3(7
8;3=,)2&

Germany VCI (WGK)
(" 2 "

World Health Organization
(WHO) - Drinking Water
(" 2 "

Ecotoxicity -
Fish Species Data
(" 2 "

Components

(2)='8:2)' 8 3(7
8;3=,)2&

Ecotoxicity - Freshwater
Algae Data
(" 2 "

Ecotoxicity - Microtox Data
(" 2 "

Ecotoxicity - Water
Flea Data
(" 2 "

Components

(2)='8:2)' 8 3(7
8;3=,)2&

EPA - ATSDR Priority List
(" 2 "

EPA - HPV Challenge
Program Chemical List
" 9 ! - (" 2 "

California - Priority Toxic
Pollutants
"

Components

(2)='8:2)' 8 3(7
8;3=,)2&

California - Priority Toxic Pollutants
(" 2 "

California - Priority Toxic Pollutants

Material Safety Data Sheet

Trade name: N-Lauroyl Sarcosine Sodium Salt

' \$! " " !

Carcinogenicity categories

EPA (Environmental Protection Agency) (* " \$ " ")
IARC (International Agency for Research on Cancer) (* " \$ " ")
NTP (National Toxicology Program) (* " \$ " ")
TLV (Threshold Limit Value established by ACGIH) (* " \$ " ")
MAK (German Maximum Workplace Concentration) (* " \$ " ")
NIOSH-Ca (National Institute for Occupational Safety and Health) (* " \$ " ")
OSHA-Ca (Occupational Safety & Health Administration) (* " \$ " ")

Product related hazard informations:

84 E " \$ * "- \$! " > \$ \$. \$ " " E G ! . "

National regulations:

Water hazard class: 1 - " G ! * > "

8" * . "

& * . " 4 ! " D > \$ 0 > E " " " ! " \$! " * - * ! " * " ! " " 4 \$ - E " " ! " " ; " " ! \$, ; 5

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Material Safety Data Sheet

Trade name: Saturated Phenol

/ * \$ " \$. !

General Information:) - * > * " 4 " \$ " ! !
 ,0)6(38 0 E F! E " *! 4 " "E \$.4! "4 F! E
Extinguishing Media: = >" - - . 4 H . *.
Flash Point: \$ \$/
Autoignition Temperature: (" E 4
Explosion Limits, Lower:(" E 4
Upper: (" E 4
NFPA Rating: ". 0 " 5 RS# / .. 4 "-5 RS# 3 " 4 "-5

) " . !

General Information: = " "E F! . " " " I
Spills/Leaks:)4 4 > " " \$ E .!" " " " ! "4 "
 ' .E ! * \$ " E E " ")E ! \$ * ..-4! " ! E
 @ " -.- ! E 4!" - " E " \$ "

0 \$ " \$

Handling: @ " ! \$ - * " \$ = > " F! " E " " ; "\$ " - D
 " \$ " 7. " - " ! " ! " F! " 6 E " 4 ; \$! + " "
 "\$ " - + > - * . " " D * . ; " \$ " @ " \$ 4 * ! ; "
 ! G ! " > 4 G " \$ " H " " " " D * " "
Storage: + > - * . " * " + > - * ! * \$ " + * . " " > " H G \$
 . " " " - > E " " " > - * . . " 4 ! 4 "

! 7H ! " " "

Exposure limits

Chemical Name	OSHA - Finals PELs	NIOSH	ACGIH
	. &@)RS # . \$6. &@)	. &@)RS # . \$6. &@) . 3;20	. &@)RS # D " " \$ * " " 4! " " E H ! 4- " ! " ! ! "
& - H. " -	"	"	"
; !. 7;&) - "	"	"	"

OSHA Vacated PELs: 5 . &@)RS # . \$6. &@) & - H. " - . . " 5 (8 0)
 C " 72 " * " . ; !. 7;&) - " 5 (8 0) C " 72

Personal Protective Equipment

Eyes: @ " " "E - \$ " * - \$ \$\$ 4 4-8 0)S -
 * " " \$! " " / " 7! " 7(
Skin: @ " " "E \$ E " E " D H !
Clothing: @ " " "E " \$ " E " D H !
Respirators: / > " 8 0) " \$! " * ! / " 7! " 7(
 = (38 06, 0) 7! " 7(E " * H ! . " H *
 " " " - . " . H

Material Safety Data Sheet

Trade name: Saturated Phenol

&H \$ * ." " !

8 "5 2; N .\$.6D\$RS #
8 "5 2; N .\$.6D\$RS #
D 44 "5 2; N .\$.6D\$RS #
D "5 2; N .\$.6D\$RS #
D "5 2; N .\$.6D\$RS #

)V I 5
8 "5 2; N .\$.6D\$RS #

)V I 5

Carcinogenicity:

)V I 5
(" " 4-) 130 3)' (&)
)V I 5
(" " 4-) 130 3)' (&)
)V I 5
(" " 4-) 130 3)' (&)

Epidemiology: (* ." *!
Teratogenicity: (* ." *!
Reproductive Effects: (* ." *!
Mutagenicity: (* ." *!
Neurotoxicity: (* ." *!

7 \$ * ."

Ecotoxicity: ; 5/" , >57 N .\$.6 RS # !RS #

V I ; 5
/" , >57 N .\$.6 RS # ! !RS #
V I

(
"

Environmental: @ " 4 H " " \$ * " -4 " " F!" \$.
Physical: 0- " " " 4 " -5 3 > " > " 4 H " " \$ * " - - -G

Other: (87 * 2 !. " ! "E! > .\$.6 " \$. " !- & !
2 > .\$.6 1..! * " !
" ! !
2 > .\$.62 2! ! !

;

> " \$ " ! " " " > "
= 7) \$! " * " " * " " > "
\$ " ! " " " " " G ! > " \$! " " ! " ") " ! " > " * "
RCRA P Series:
(" "
RCRA U Series:
)V I 5 > " !.4 = II

Material Safety Data Sheet

Trade name: Saturated Phenol

& " * . "

" "# \$ " * " " " " * . "

RID/ADR
Non-hazardous for road transport.

IMDG
Non-hazardous for sea transport.

IATA
Non-hazardous for air transport.

' \$! "

Sara

Section 355 (extremely hazardous substances):
(* " \$ " " "

Section 313 (Specific toxic chemical listings):
(* " \$ " " "

TSCA (Toxic Substances Control Act):
) \$ " " "

Proposition 65

Chemicals known to cause cancer:
(* " \$ " " "

Chemicals known to cause reproductive toxicity for females:
(* " \$ " " "

Chemicals known to cause reproductive toxicity for males:
(* " \$ " " "

Chemicals known to cause developmental toxicity:
(* " \$ " " "

Material Safety Data Sheet

Trade name: Saturated Phenol

' \$! " " !

Carcinogenicity categories

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Product related hazard informations:

84 E " \$ * "- \$! " > \$. \$ " " E G ! ."

National regulations:

Water hazard class: 1 - " G ! * > "

8" * ."

& * . " 4 ! " D > \$ 0 > E " " " ! " \$! " * - * ! " * " ! " " 4 \$ - E " " ! " " ; " ! \$, ; 5

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Material Safety Data Sheet

3 " * " * !4 "

Trade name: Sodium acetate

) " !.4 5)
 } " * " !4 " 6 " " 24 " - .
 , !* " ! 6! 5
 Bioingentech Ltd.

Emergency Information:

>>>4 \$ " . *?4 \$ " .

. " 6; " . "

Chemical Name	CAS#	Weight %
!. "		

0 G " * "

Emergency Overview

CAUTION! MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

SAF-T-DATA(tm) ' " \$ E * -! E

0 " " \$5 \$ "

/ ..4 " - " \$5 \$ "

' " E " " \$5 \$ "

" " " \$5 \$ "

24 " " E 7F! 5 181127 9 2)# 8)&9 C7(& 088;9 ' 8 7' 128C7

" \$ " 51 1 " \$

Potential Health Effects

Inhalation:

, - ! " " " " - " " - . " . - ! ! \$ \$ " " 4 4 " \$ "

Ingestion:

2 \$. - ! 4 . ! E . " \$

Skin Contact:

, - ! " " > "

Eye Contact:

" " . - ! " "

Chronic Exposure:

(* . " * !

Aggravation of Pre-existing Conditions:

(* . " * !

/ " . !

Inhalation: ' . E " * 1 " . " " * - 4 " \$ ** ! "-

Ingestion: 1 E E \$ * > " " D " ! " 3* \$. ! " > > \$ " . " E

Skin Contact: 3.. " - * ! D > " " - * > " * " " . ! " ' : E * " " " \$

@ " \$ 4 * ! & ! \$ - 4 * ! 1 " . " " " E * " " " \$

E

Eye Contact: 3.. " - * ! - > " " - * > " * " " . ! " * " \$! > -

- 1 " . " " " * " " > -

Material Safety Data Sheet

Trade name: Sodium acetate

/ * \$ " \$. !

Fire:)!" \$ " " . "!" 5 /
) > " . " \$) - ! , " 4 " E " " . " ! 4- " " > " \$ " ! 2 "

Explosion: / ! " " ! * " " " " " * \$ " !
 " " ! " H G

Fire Extinguishing Media: @ " - - . * . 4 H
 Special Information: 3 " E " * * > * ! " " E " \$ (380 E * "
 4 " \$ " ! > * ! * " " " ! . " " E " ! .

) " . !

' . E ! * \$ " C " " * D @ " " " E F ! . "
 " * F ! . " ! ! 4 " ! " E " " " \$ 4 . " \$ > " > " D ! * * E -
 . ! " * ! . - 4 * ! " > > " " * > "

0 \$ " \$

+ " \$ " - " " " - E " " " \$ " - . \$ 3 "
 * ! - ! * " \$ 9 4 E > \$! " " * " ! "

17H ! " " "

Airborne Exposure Limits: (" 4
 Ventilation System:) - " . * 6 \$ H ! " " " D . - H !
 > 4 2 H ! " E " " \$ - * 4 ! " " " D * " ") 130 ! . "

Industrial Ventilation, A Manual of Recommended Practices . " * " " " "
 Personal Respirators (NIOSH Approved): / * ! > H ! " ! " . "
 \$ " \$! 4 " ! " \$ * ! \$ - " (380 " - (4 " " * " - 4 > 3 *
 " " > H ! E " " D > ! * ! * " E " ! ! " . \$

@) (3 (15) ! - \$ " > D H - \$ * " " . "
 Skin Protection: @ " " E \$ E " 4 - E \$ " \$
 Eye Protection: = . * - \$ \$ \$, " - > * ! " F ! D * " > D

- . " " !

Appearance	- "
Odor	\$ " "
Solubility	\$.6 . > " ?
Density	
pH	1
% Volatiles by volume @ 21C (70F)	
Boiling Point	(" 4
Melting Point	2 > " ? 1/9 . ? /
Vapor Density (Air=1)	(* . " * !
Vapor Pressure (mm Hg)	(* . " * !
Evaporation Rate (BuAc=1)	(* . " * !

Material Safety Data Sheet

Trade name: Sodium acetate

" 4 " - " E " -

Stability: " 4 ! - " * ! " \$
 Hazardous Decomposition Products: 7. " * !. * " ! " \$ " ">" " \$
 Hazardous Polymerization: @ " !
 Incompatibilities: (" * ! " !. " " " \$ H G D "
 Conditions to Avoid: 3 . " 4

& H \$ * . "

Cancer Lists

NTP Carcinogen

Ingredient Name	CAS#	Known	Anticipated	IARC Category
!) ""		(((

0- " 5 3 E " \$ " ! " \$) - ! 5 8 " 2; 5 . \$ 6 D \$ 9 " " 2 5 W \$. 6 . 9
 D 4 4 " 2; 5 W \$ 6 D \$ 9 3 " " ; " " ; G 5 D 4 4 " . \$ 6 0 . 9 " " ; G
 7- 4 4 " . \$. 3 E " \$ " ! " \$

7 \$ * . "

Environmental Fate: (* . " * !
 Environmental Toxicity: / > " / ; " 5 0 2 2 . . ! 5 . \$ 6 2
 , " H ; " 5 1 0 7 ! . ! " 5 . \$ 6 2
 @ " / ; " 5 1 0 7 > " * 5 ! . \$ 6 2

; "

@ " E " 4 E * E - - \$! 4 . \$ " > " " \$ " E > "
 " " * " - " \$! " " " * " ! " . - " \$ " > " . \$ " " E > "
 " " > " \$! " " " * * * . * " \$! " " ; ; " * \$ " " E > "
 " " F! . "

& " * . "

" "# \$ " * " " " " * . "

RID/ADR Non-hazardous for road transport.
IMDG Non-hazardous for sea transport.
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' \$! "

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Material Safety Data Sheet

Trade name: Sodium acetate

8" * ."

& * ." 4 ! "D > \$ 0 > E " " "!" \$! "
* - * ! " * "!" " "4 \$ - E " "!" "
: "!" ! \$, ; 5
Bioingentech Ltd.

Bioingentech Ltd.

0327

. 5 * ?4 \$ " . > 4 " 5 >>> 4 \$ " .
& 5 X