

Issuing date: 03Nov22

Revision date: 06Nov22

Rev. 02

SDS PN: 102-850-800

1. Product and company identification				
1.1 Product identifier				
Product name	Onso™ sequencing reagent pack, 200 cycles			
Product number(s)	102-656-400			
Other means of identification	This product is a box containing a plastic reagent pack. The reagent pack contains 20 reagent bottles.			
	<i>Subcomponent name</i>	<i>Part #</i>	<i>#</i>	<i>Position</i>
	Buffer C	102-379-600	2	1, 6
	Buffer A	102-385-100	1	3
	Buffer B	102-385-200	1	8
	Imaging buffer	102-384-700	1	4
	Stripping buffer	102-384-700	2	5, 10
	QC buffer	102-384-800	1	9
	Incorporation buffer S	102-807-400	2	2,7
	Primer buffer	102-385-400	4	17, 18, 19, 20
	Insert primer 1	102-385-500	1	15
	Index primer 1	102-385-600	1	16
	Index primer 2	102-386-000	1	14
	Blocking buffer	102-385-300	1	12
	Change strand reagent	102-385-900	1	11
	Scale insert primer	102-385-800	1	13
1.2 Relevant identified uses of the substance or mixture and uses advised against				
Identified use	The Onso sequencing reagent pack, 200 cycles, contains sequencing reagents to enable up to 200 sequencing-by-binding (SBB™) cycles on the Onso system. Includes support for single- and dual-index reads.			
Restrictions on use	Research use only.			
1.3 Details of the supplier of the substance or mixture				
Supplier name and address	Pacific Biosciences of California, Inc. 1305 O'Brien Drive Menlo Park, CA 94025 USA https://www.pacb.com			
Supplier phone	+1.650.521.8000			
1.4 Emergency telephone number				
Within USA and Canada	Call CHEMTREC 1-800-424-9300 (reference CCN# 656805)			
Outside USA and Canada	techsupport@pacb.com			
2. Hazard(s) identification				
2.1 Classification of the substance or mixture				

The sequencing reagent pack contains hazardous substances.¹ Subcomponents are classified as follows. The classification for Buffer C depends on the physical state of the material.



<i>Subcomponent name</i>	<i>Part #</i>	<i>Classification</i>
Buffer C – FROZEN (solid)	102-379-600	Oxidizer (category 3), Acute toxicity, oral (category 4), Eye irritation (category 2A), Skin irritation, (category 3), Acute aquatic toxicity (category 2).
Buffer C – THAWED (liquid)	102-379-600	Oxidizer (category 3), Acute toxicity, oral (category 4), Acute toxicity, inhalation (category 1), Eye irritation (category 2A), Skin irritation, (category 2), Specific target organ toxicity - single exposure, inhalation (category 1), Acute aquatic toxicity (category 2).
Buffer A	102-395-100	Skin irritation, (category 3).
Buffer B	102-385-200	Skin irritation, (category 3).
Imaging buffer	102-384-700	Skin irritation (category 3), Skin sensitizer (category 1), Carcinogen (category 2).
Stripping buffer	102-384-700	Skin irritation (category 3).
QC buffer	102-384-800	Skin irritation (category 3).
Incorporation buffer S	102-385-000	Skin irritation (category 3).
Primer buffer	102-385-400	Skin irritation (category 3).
Insert primer 1	102-385-500	Skin irritation (category 3).
Index primer 1	102-385-600	Skin irritation (category 3).
Index primer 2	102-386-000	Skin irritation (category 3).
Blocking buffer	102-385-300	Skin irritation (category 3).
Change strand reagent	102-385-900	Not a hazardous material.
Scale insert primer	102-385-800	Not a hazardous material.

2.2 GHS label elements and precautionary statements

Information is provided for the hazardous components listed in section 2.1

<i>Product</i>	<i>Pictogram</i>	<i>Signal word</i>	<i>Hazard statement(s)</i>	<i>Precautionary statement(s)</i>
Buffer C – FROZEN (solid)		Warning	<ul style="list-style-type: none"> • May intensify fire • Harmful if swallowed • Causes serious eye irritation • Causes mild skin irritation • Toxic to aquatic life 	<ul style="list-style-type: none"> • Keep away from heat, hot surfaces, sparks, open flames, and other ignition source. No smoking. • Keep away from clothing and other combustible materials. • Wash hands thoroughly after handling. • Do not eat, drink, or smoke when using product. • Avoid release to the environment. • Wear protective gloves, protective clothing and eye protection. • IF SWALLOWED: Get medical help and rinse mouth. • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • If skin irritation occurs: Get medical help. • If eye irritation occurs: Get medical help. • In case of fire: Use water, dry chemical, carbon dioxide or foam to extinguish. • Dispose of contents/container in accordance with local regulations.

¹ Classification in accordance with 29CFR1910 (OSHA HCS) and UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Buffer C – THAWED (liquid)		Danger	<ul style="list-style-type: none"> • May intensify fire • Harmful if swallowed • Causes serious eye irritation • Causes skin irritation • Fatal if inhaled • Causes damage to organs, via inhalation • Toxic to aquatic life 	<ul style="list-style-type: none"> • Keep away from heat, hot surfaces, sparks, open flames, and other ignition source. No smoking. • Keep away from clothing and other combustible materials. • Do not breathe gas or vapors. • Wash hands thoroughly after handling. • Do not eat, drink, or smoke when using product. • Use only outdoors or in well-ventilated area. • Avoid release to the environment. • Wear protective gloves, protective clothing and eye protection. • IF SWALLOWED: Get medical help and rinse mouth. • IF ON SKIN: Wash with plenty of water. • IF INHALED: Remove person to fresh air and keep comfortable for breathing. • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • If exposed or concerned, get emergency medical help immediately. • If skin irritation occurs: Get medical help. • If eye irritation occurs: Get medical help. • Take off contaminated clothing and wash before reuse. • In case of fire: Use water, dry chemical, carbon dioxide or foam to extinguish. • Collect spillage. • Store in well-ventilated place, keep container tightly closed • Store locked up. • Dispose of contents/container in accordance with local regulations.
Buffer A	None	Warning	<ul style="list-style-type: none"> • Causes mild skin irritation 	<ul style="list-style-type: none"> • If skin irritation occurs: Get medical help
Buffer B	None	Warning	<ul style="list-style-type: none"> • Causes mild skin irritation 	<ul style="list-style-type: none"> • If skin irritation occurs: Get medical help
Imaging buffer		Warning	<ul style="list-style-type: none"> • Causes mild skin irritation • May cause an allergic skin reaction • Suspected of causing cancer 	<ul style="list-style-type: none"> • Obtain, read and follow all safety instructions before use • Avoid breathing mist, vapors, or spray. • Contaminated work clothing should not be allowed out of the workplace • Wear protective gloves, protective clothing, eye & face protection • IF ON SKIN: Wash with plenty of water • If exposed or concerned, get medical advice • If skin irritation or rash occurs: Get medical help • Take off contaminated clothing and wash it before reuse • Store locked up • Dispose of contents/container in accordance with local/regional/national regulations.
Stripping buffer	None	Warning	<ul style="list-style-type: none"> • Causes mild skin irritation 	<ul style="list-style-type: none"> • If skin irritation occurs: Get medical help
QC buffer	None	Warning	<ul style="list-style-type: none"> • Causes mild skin irritation 	<ul style="list-style-type: none"> • If skin irritation occurs: Get medical help

Incorporation buffer S	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help
Primer buffer	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help
Insert primer 1	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help
Index primer 1	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help
Index primer 2	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help
Blocking buffer	None	Warning	• Causes mild skin irritation	• If skin irritation occurs: Get medical help

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Change strand reagent contains bovine derived material. Country of origin USA. Certificate of origin available upon request.

3. Composition / information on ingredients

3.1 Substances

Common name and synonyms	Onso™ sequencing reagent pack
CAS number	None
Other unique identifiers	None

3.2 Hazardous components

The following hazardous ingredients are present.

<i>Subcomponent</i>	<i>Hazardous ingredient(s)</i>	<i>CAS</i>	<i>GHS classification</i>	<i>Concentration (wt%)</i>
Buffer C, A, B	Acetic acid	64-19-7	Flammable liquids (category 3), Skin corrosion (category 1A), Serious eye damage (category 1)	< 1%
Buffer A, B	1,4-diazobicyclooctane	280-57-9	Flammable solids (category 1), Acute toxicity, oral (category 4), Skin irritation (category 2), Serious eye damage (category 1)	< 1%
Buffer A, B	Lithium acetate	546-89-4	Acute toxicity, oral (category 4), Eye irritation (category 2A), Acute aquatic hazard (Category 3)	< 1%
QC buffer	Hexylene glycol	107-41-5	Skin irritation (category 2), Eye irritation (category 2A)	< 5%
Imaging buffer	Hydroxylamine	7803-49-8	Corrosive to metals (category 1), Acute toxicity, oral (category 4), Acute toxicity, dermal (category 4), Skin irritation (category 2), Serious eye damage (category 1), Skin sensitization (category 1), Carcinogen (category 2), Specific target organ toxicity - single inhalation exposure - respiratory system (category 3) Specific target organ toxicity - repeat exposure - blood (category 2), Acute aquatic hazard (category 1)	≤ 0.1%
Stripping buffer, Incorporation buffer S, Primer buffer, Insert primer 1, Index primer 1, Index primer 2, Blocking buffer	Potassium hydroxide	131-58-3	Corrosive to Metals (category 1), Skin corrosion (category 1A), Serious eye damage (category 1)	< 1%
Incorporation buffer S	TCEP HCl	51805-45-9	Skin corrosion (category 1B), Serious eye damage (category 1)	< 0.1%
Buffer C	Sodium nitrite	7632-00-0	Oxidizing solids (category 3), Acute toxicity, oral (category 3), Eye irritation (category 2A), Carcinogen (category 1B), Acute aquatic hazard (category 1)	< 15%

Buffer C	Triton X-100	9036-19-5	Skin irritation (Category 2), Serious eye damage (category 1), Acute aquatic hazard (category 1), Chronic aquatic hazard (category 1)	< 0.1%
4. First aid measures				
4.1 Description of first aid measures				
General advice	Consult a physician. Show this safety data sheet to the physician. Follow the general practices listed for all components and specific practices as noted. Get medical help if feel unwell. <ul style="list-style-type: none"> • Buffer C (thawed liquid): If exposed or concerned, get emergency medical help immediately. • Imaging buffer: If exposed or concerned, get medical advice. 			
If inhaled	If breathed in, move person into fresh air. If not breathing, give artificial respiration. <ul style="list-style-type: none"> • Buffer C (thawed liquid): Remove person to fresh air and keep comfortable for breathing. 			
In case of skin contact	Wash off with water. If skin irritation occurs: Get medical help <ul style="list-style-type: none"> • Buffer C (frozen solid): If skin irritation occurs: get medical help. • Buffer C (thawed liquid): IF ON SKIN: Wash with plenty of water. If skin irritation occurs: get medical help • Imaging buffer: IF ON SKIN: Wash with plenty of water. If skin irritaiton or rash occurs: Get medical help. 			
In case of eye contact	Flush eyes with water. <ul style="list-style-type: none"> • Buffer C (solid or liquid): IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation occurs, get medical help. 			
If swallowed	Never give anything by mouth to an unconscious person. Rinse mouth with water. <ul style="list-style-type: none"> • Buffer C (solid or liquid): IF SWALLOWED: Get medical help and rinse mouth. 			
4.2 Most important symptoms/effects, both acute and delayed				
No data available. Refer to section 2.2 and section 11 for additional information.				
4.2 Indication of any immediate medical attention and special treatment needed				
No data available				
5. Fire-fighting measures				
5.1 Suitable extinguishing media				
Dry chemical, carbon dioxide, foam, or water. <ul style="list-style-type: none"> • Buffer C (solid or liquid): In case of fire: Use water, dry chemical, carbon dioxide or foam to extinguish. 				
5.2 Special hazards arising from the substance or mixture				
Combustion will produce oxides of carbon and nitrogen and sulfur.				
5.3 Advice for firefighters (special protective equipment or precautions)				
Wear self-contained breathing apparatus for fire-fighting as necessary.				
6. Accidental release measures				
6.1 Personal precautions, protective equipment and emergency procedures				
Avoid breathing vapors, mists, or gas. For personal protection see section 8.0.				
6.2 Environmental precautions				
Avoid release to the environment. Report spills and releases as required to appropriate authorities.				
6.3 Methods and materials for cleanup				
Wear personal protective equipment, wipe up with paper towel (or similar), and contain in closed containers.				
6.4 Reference to other sections				
For disposal see section 13.				

7. Handling and storage	
7.1 Precautions for safe handling	
<p>For all components, utilize standard good lab practices, use in a well-ventilated area, and wear standard PPE (gloves, lab coat, safety glasses). In addition to the general practices, follow specific practices as noted.</p> <ul style="list-style-type: none"> • Buffer C (frozen solid): Wear protective gloves, protective clothing and eye protection. Keep away from heat, hot surfaces, sparks, open flames, and other ignition source. No smoking. Keep away from clothing and other combustible materials. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Avoid release to the environment. • Buffer C (thawed liquid): Wear protective gloves, protective clothing and eye protection. Do not breathe gas or vapors. Keep away from heat, hot surfaces, sparks, open flames, and other ignition source. No smoking. Keep away from clothing and other combustible materials. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well-ventilated area. Take off contaminated clothing and wash before reuse. Avoid release to the environment. • Imaging buffer: Obtain, read and follow all safety instructions before use. Wear protective gloves, protective clothing, eye & face protection. Avoid breathing dust/fume/gas/mist/vapours/spray. Take off contaminated clothing and wash it before reuse. Contaminated work clothing should not be allowed out of the workplace. 	
7.2 Conditions for safe storage, including any incompatibilities	
<p>Keep containers tightly closed at the recommended storage temperature.</p> <ul style="list-style-type: none"> • Buffer C (thawed liquid): Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep away other combustible materials and other combustible materials. • Imaging buffer: Store locked up. 	
8. Exposure controls / personal protection	
8.1 Control parameters	
Contains no substances with occupational exposure limit values.	
8.2 Exposure controls	
Appropriate engineering controls:	
General industrial hygiene practice. No special ventilation required for normal use.	
Personal protective equipment (PPE):	
Eye/face protection	Safety glasses
Skin and body protection	Latex or nitrile gloves; lab coat /apron
Respiratory protection	None required
9. Physical and chemical properties	
9.1 Information on basic physical and chemical properties	
Appearance	Each reagent tube contains clear colorless liquid.
Odor	No odor
Odor threshold	No data available
pH	7.0-8.5 except Buffer C pH = 5.2
Melting point/freezing point	Similar to water.
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limit	No data available
Vapor pressure	No data available
Relative density	No data available
Solubility(ies)	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
10. Stability and reactivity	
Reactivity	This product is not reactive under normal conditions of storage and use.
Chemical stability	Stable under recommended storage conditions.
Possibility of hazardous reactions	Once thawed, Buffer C generates nitrogen oxide gases. Heat and/or sunlight can accelerate this reaction.
Conditions to avoid	Heat. Direct sunlight.
Incompatible materials	Avoid contact with strong acids, bases, and oxidizers. <ul style="list-style-type: none"> • Buffer C: Avoid contact with organic substances
Hazardous decomposition products	No data available. In the event of fire see section 5.
11. Toxicological information	
11.1 Information on likely routes of exposure	
The most likely routes of exposure are contact with the skin, eye contact or inhalation. Exposure via ingestion is less likely.	
11.2 Symptoms related to the physical, chemical and toxicological characteristics	
No data available	
11.3 Delayed and immediate effects and also chronic effects from short-and long-term exposure	
Eyes	No data available
Skin	No data available
Inhalation	No data available
Ingestion	No data available
Chronic effects	No data available
Aggravated medical conditions	No data available
Interactions with other chemicals	No data available
11.4 Numerical measures of toxicity	
Acute toxicity	No data available
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Respiratory or skin sensitization	No data available
Germ cell mutagenicity	No data available
Reproductive toxicity	No data available
Specific target organ toxicity	No data available
11.5 Carcinogenicity	
No ingredients in this product are listed as carcinogens by ACGIH, IARC, NTP or OSHA.	
12. Ecological information	
Ecotoxicity	No data available, except as noted. <p>Fathead minnows 96hr LC 50</p> <ul style="list-style-type: none"> • Buffer C: < 400 mg/L • Imaging buffer: > 750 mg/L • QC buffer: > 750 mg/L • Incorporation buffer S: > 750 mg/L
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available

Results of PBT and vPvB assessment	None Required
Other adverse effects	No data available
13. Disposal considerations	
Dispose all waste in accordance with local, regional and national regulations. For disposal of Buffer C, the generation of nitrogen oxides can be halted by raising the pH of the solution above pH 8.	
Product	See above
Contaminated packaging	See above
US EPA (RCRA, federal) waste codes	Buffer C carries D001 (oxidizer) waste code; Other reagents do not carry US federal (RCRA) waste codes.
State waste codes	Check your state regulations to determine applicable waste codes.
14. Transport information	
Transportation of this product is regulated under ICAO, IMDG and US DOT. The shipping name applies to the frozen product only. Thawed product not suitable for shipment by air or ground.	
Proper shipping name	UN3219 Nitrites, Inorganic, aqueous, n.o.s. (sodium nitrite), 5.1, III
15. Regulatory information	
15.1 USA federal regulations	
SARA 302	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 313	This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313
SARA 311/312	The following reagents have the SARA hazards listed. Other components have no SARA hazards. <ul style="list-style-type: none"> • Buffer C (frozen): Oxidizer; Acute toxicity, oral; Eye irritation • Buffer C (thawed): Oxidizer; Acute toxicity, oral; Acute toxicity, inhalation; Serious eye damage, Skin irritant; Specific target organ toxicity (single exposure) • Imaging buffer: Skin sensitization, Carcinogenicity
TSCA	Research use only
15.2 USA state regulations	
CA Prop 65	This kit does not contain any chemicals known to the state of California to cause cancer or adverse reproductive health effects
16. Other information	
Prepared by	Pacific Biosciences of California, Inc. Environment, Health and Safety 1305 O'Brien Drive Menlo Park, CA 94025 USA safety@pacb.com
Further information	The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. It is not a warranty or quality specification. This information relates only to the specific material designated and may not be valid for use in combination with any other material or in any other process. Research use only. Not for use in diagnostic procedures. ©2023, Pacific Biosciences of California, Inc. ("PacBio"). All rights reserved. Information in this document is subject to change without notice. PacBio assumes no responsibility for any errors or omissions in this document. Certain notices, terms, conditions and/or use restrictions may pertain to your use of PacBio products and/or third-party products. Refer to the applicable PacBio terms and conditions of sale and to the applicable license terms at pacb.com/license . Pacific Biosciences, the PacBio logo, PacBio, Circulomics, Omniome, SMRT, SMRTbell, Iso-Seq, Sequel, Nanobind, SBB, Revio, Onso, Apton and Kinnex are trademarks of PacBio.