Data in Brief 7 (2016) 1556–1559

Contents lists available at ScienceDirect

Data in Brief

journal homepage: www.elsevier.com/locate/dib

Data Article

CO_2 and O_2 solubility and diffusivity data in food products stored in data warehouse structured by ontology

Valérie Guillard [a,*], Patrice Buche [a], Juliette Dibie [b], Stéphane Dervaux [b], Filippo Acerbi [a], Estelle Chaix [a], Nathalie Gontard [a], Carole Guillaume [a]

[a] UMR IATE, University of Montpellier – INRA, 2 place Pierre Viala, F-34060 Montpellier Cedex 1, France
[b] AgroParisTech & INRA UMR MIA 518, 16, rue Claude Bernard, F-75 231 Paris Cedex 05, France

ARTICLE INFO

Article history:
Received 19 March 2016
Received in revised form
15 April 2016
Accepted 19 April 2016
Available online 26 April 2016

Keywords:
Diffusivity
Solubility
Data
Data warehouse
Ontology
Food
O_2
CO_2

ABSTRACT

This data article contains values of oxygen and carbon dioxide solubility and diffusivity measured in various model and real food products. These data are stored in a public repository structured by ontology. These data can be retrieved through the @Web tool, a user-friendly interface to capitalise and query data. The @Web tool is accessible online at http://pfl.grignon.inra.fr/atWeb/.

Specifications Table

Subject area	*Biochemistry*
More specific subject area	*Food science and food engineering*
Type of data	*Table, links*

* Corresponding author.
E-mail address: guillard@univ-montp2.fr (V. Guillard).

http://dx.doi.org/10.1016/j.dib.2016.04.044

How data was acquired	*Chemical titration (for CO_2 quantification) and luminescence-based detection (for O_2 detection) implemented in dedicated experimental set-ups*
Data format	*Analyzed, ready to use*
Experimental factors	*Samples considered are model and real food products without any pre-treatment except addition of sodium azide to avoid microbial growth*
Experimental features	*Solubility is measured by quantifying the concentration of dissolved gas in a sample in equilibrium with a fix and controlled partial pressure. Diffusivity is identified from an experimental diffusion kinetic curve by using a mathematical model and appropriate numerical treatment (algorithm of optimization).*
Data source location	*University of Montpellier, FR-34060, France*
Data accessibility	*Data is within this article.*

Value of the data

- A unique set of CO_2 solubility and diffusivity data indispensable in food engineering to model CO_2 gas transfer in food.
- A unique set of O_2 diffusivity values within synthetic oils as a function of temperature.
- O_2 diffusivity data could be used to predict oxidation of O_2-sensitive compounds in foods.
- These data could serve as benchmark for other researchers coping with research on gas transfer in food for numerous simulation.

1. Data

Data shared with this article are more than 100 data of solubility and diffusivity of gases (O_2 and CO_2) in food samples. These data are stored in a data warehouse called @Web in which the data management is guided by ontology.

All data are available for uploading at the URL specified below and recalled in the table hereafter with the details about the nature and amount of data available at each URL.

Data type	Table URL (copy/paste the URL in your Internet browser)	Amount of data
CO_2 solubility	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2775&idDoc=1335&id=35272672	34
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2776&idDoc=1335&id=35305550	21
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2773&idDoc=1335&id=35245144	48
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2732&idDoc=1332&id=34354344	3
CO_2 diffusivity	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2780&idDoc=1346&id=35361064	12
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2826&idDoc=1346&id=36350532	11
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2779&idDoc=1346&id=35346176	11
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2778&idDoc=1346&id=35333312	12
	pfl.grignon.inra.fr/atWeb/TableServlet?viewTable=2777&idDoc=1346&id=35320430	16