TECHNICAL DATA SHEET

Date of Issue: 2017/01/09

Zinc Bromide / Lithium Bromide, typ. 25 % solution in Dibutyl Ether

Molecular Formula	$ZnBr_2$ x LiBr
Product Number	408605

APPLICATION

The use of a 'ready-made' dibutyl ether solution avoids the handling of the very hygroscopic and dusty $ZnBr_2$ and LiBr powder.

The $ZnBr_2$/LiBr dibutyl ether solution was developed mainly for the application in organic synthesis, e.g.:

- transmetallation of organomagnesium and organolithium compounds to the corresponding zinc reagents for C-C coupling reactions (Negishi protocol)
- formation of zinc enolates by deprotonation of carbonyl compounds using standard bases followed by transmetallation with $ZnBr_2$
- catalysis of cycloaddition reactions e.g. Diels-Alder reactions of electron rich dienes with carbonyl compounds
- preparation of selective reducing agents, e.g. $Zn(BH_4)_2$ by reaction of$NaBH_4$ with $ZnBr_2$

Reference:

McGarvey, G.J. in Encyclopedia of Reagents for Organic Synthesis, Paquette, L.A., Ed. John Wiley and Sons, New York (1995), Vol. 8, 5544

FURTHER INGREDIENTS

Dibutyl ether	
CAS-No.	142-96-1
EC-No.	205-575-3
Zinc bromide	
CAS-No.	7699-45-8
EC-No.	231-718-4
Lithium bromide	
CAS-No.	7550-35-8
EC-No.	231-439-8

SPECIFICATION

Zinc Bromide	23 - 27 %
Lithium Bromide	8 - 12 %
Water content	< 0.13 %

METHOD OF ANALYSIS

Determination of assay
1) $ZnBr_2$ via complexometric titration of Zn
2) LiBr via FES of Li
3) water via Karl-Fischer titration

PHYSICAL PROPERTIES

Appearance	clear or light turbid liquid
Color	tan to pink
Crystallization temperature	< -10 °C
Flash point	25 °C (Di-n-butyl ether)
Boiling point/boiling range	142 - 143 °C at 1,013 hPa (Di-n-butyl ether)
Density	1.1 g/cm3 at 20 °C
Molecular weight	312.04 g/mol
Thermal Stability	Crystallization below -10 °C
Additional Physical Properties	Molecular weight: $ZnBr_2$ 225.19 g/mol LiBr 86.85 g/mol

HANDLING & STORAGE

Handling	Under exclusion of air and humidity stable over practically unlimited periods. Dibutyl ether can form explosive peroxides in contact with air. Storage and handling under inert gas is recommended. Pay attention to official safety regulations (see also 'Transport regulations' and 'GHS Hazard Pictograms').

Storage

As $ZnBr_2$/LiBr tends to crystallize from the solution material should be stored above 0 °C. Pay attention to official safety regulations (see also: ”Transport regulations” and “Marking“).

TRANSPORT & PACKAGING

UN number 2924

ADR	Class: 3	PG: III	Label: 3 (8)
RID	Class: 3	PG: III	Label: 3 (8)
IMDG	Class: 3	PG: III	Label: 3 (8)
IATA_C	Class: 3	PG: III	Packing instruction (cargo aircraft): 365
IATA_P	Class: 3	PG: III	Packing instruction (passenger aircraft): 354

Hazard pictograms

Signal Word Danger

H&P Phrases See Safety Data Sheet

Labelling The labelling is according to EU-GHS classification ((EG) 1272/2008) and may vary in other countries. Please refer to the respective Safety Data Sheet for your country.

Packaging

Glass bottles of 100, 250, 500, and 1,000 ml. Steel bottles with volumes of 7.4, 27, 127 or 450 l. Steel drums up to 200 l. For safety reasons these are filled to a maximum of 90 %.

OTHER INFORMATION

Further Related Documents Safety Data Sheet