

ICS 13.100
CCS E 09

SN

**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

SN/T 3512-2013

**Determination of tetrabromobisphenol A bis(2, 3-dibromopropyl
ether) in electrical and electronic equipment. High performance
liquid chromatography
(English Translation)**

Issued on: January 7, 2016

Implemented on: June 1, 2016

Issued by: National Energy Administration

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Terms and definitions...	4
4 Lifting organization and responsibilities...	5
5 Lifting preparation...	5
5.1 General requirements...	5
5.2 Technical measures for lifting...	6
5.3 Lifting machinery, rigging, supporting facilities...	8
6 Installation and use of mast crane...	13
6.1 General requirements...	13
6.2 Installation (disassembly) of mast crane...	13
6.3 Movement of mast crane...	14
6.4 Use of mast crane...	14
7 Installation and use of hydraulic lifting (jacking) gantry crane...	15
7.1 General requirements...	15
7.2 Installation of hydraulic lifting (jacking) gantry crane...	16
7.3 Use of hydraulic lifting (jacking) gantry crane...	17
8 Selection and use of mobile cranes...	17
8.1 Selection of mobile cranes...	17
8.2 Use of mobile cranes...	17
9 Control of lifting process...	18
9.1 Working environment...	18
9.2 Lifting operations...	18
10 Emergency management...	22

1 Scope

This standard specifies the lifting organization and lifting preparation of large equipment, the installation and use of mast cranes, the installation and use of hydraulic lifting (jacking) gantry cranes, the use of mobile cranes (crawler cranes, tire cranes, truck cranes), the lifting process control, the emergency management and other basic requirements for safe production.

This standard applies to the lifting of large equipment in newly built, renovated (expanded), overhauled oil field ground projects, onshore petroleum and chemical engineering projects.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 5082 Cranes - Hand signals

GB/T 5972 Cranes - Wire ropes - Care, maintenance, installation, examination and discard

GB 6067.1 Safety rules for lifting appliances - Part 1.General

GB 50798-2012 Code for large-size equipment hoisting engineering in petrochemical industry

NB/T 47013.1 ~ 47013.13 Nondestructive testing of pressure equipments

3 Terms and definitions

The terms and definitions established in GB 50798-2012, as well as the following terms and definitions, apply to this document.

3.1

Lifting large equipment

The lifting process (hereinafter referred to as "lifting") of equipment (generally referring to towers, reactors, modules, components), which has a mass greater than or equal to 100 t or a one-time lifting length or height greater than or equal to 60 m.

3.2

Tensile connection plate

A plate component, which is used to connect the hook and the lifting eye of the lifted equipment. It usually uses a shaft as the connecting member.

3.3

Flange connected lug

A lug type which uses the flange on the lifted equipment as a connecting piece to fix to the equipment, which is usually a welded piece or a forging.

4 Lifting organization and responsibilities

4.1

A lifting organization structure shall be established for lifting, with a general commander, the lifting technical person in charge, the responsible engineer for lifting, a lifting commander, and a safety supervisor.

4.2

The job responsibilities of the lifting organization include.

- General commander. Fully responsible for the lifting work and overall responsible for the safety and quality of the lifting;
- Lifting technical person in charge. Responsible for organizing the preparation of large equipment lifting technical plans and responsible for review;
- Responsible engineer for lifting. Responsible for the preparation and implementation of lifting plans (measures);
- Lifting commander. Responsible for the correct implementation of on-site lifting;
- Safety supervisor. Participate in the review of lifting plans (measures); be responsible for safety inspection and supervision of on-site lifting.

5.1 General requirements

5.1.1

Lifting operators shall hold certificates when working.

the original approval procedures shall be re-approved.

5.2.2 When a new process or method is adopted for the first time, it shall be reviewed and approved by the technical person in charge of the enterprise.

5.2.3 Technical measures for lifting shall include but not be limited to the following.

- Project overview;
- Basis for preparation;
- Main parameters of equipment, components and lifting process methods;
- Calculation of stress in lifting process;
- The composition and job responsibilities of lifting operators;
- Technical, quality and safety requirements;
- Risk analysis and emergency plans;

- Summary table of lifting equipment and rigging;
- List of materials used for construction methods;
- Lifting process flow chart;
- Design drawings and calculations of self-designed slings and facilities, including lifting lugs, tensile connection plates, connecting shafts, spreader beams, reinforcements, etc.;
- Lifting floor plan, etc.

5.2.4 The force calculation shall include but not be limited to the following.

- Calculation of loads;
- Calculation of the location of the center of gravity of the equipment;
- Stress calculation in the lifting state (process) of the equipment, selecting machinery and rigging according to the maximum stress and calculating the safety factor;
- Verification of crane foundation bearing capacity;
- If necessary, verification of the entire or partial equipment and components.

5.2.5 The lifting floor plan shall include but not be limited to the following.

wire rope. Generally, the diameter of the winding drum shall be 16 to 25 times the diameter of the steel wire rope.

5.3.4.4 When multiple winches are used to lift equipment, their traction speed and lifting capacity shall match.

5.3.4.5 When multiple winches are used to lift equipment, each winch shall be equipped with a separated switch.

5.3.4.6 The insulation resistance of electrical equipment such as motors shall be greater than or equal to 0.5 Mohm.

5.3.4.7 The braking device of the winch shall be safe and reliable.

5.3.4.8 The resistance value of the winch protective grounding shall be less than 10 ohm.

5.3.5 Pulley (block)

5.3.5.1

The pulley (block) shall be used according to its rated lifting capacity. When the pulley block is used partially, the load shall be reduced in proportion to the corresponding number of pulleys.