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**SN**

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

**SN/T 2497.4-2010**

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**Test method of import and export dangerous chemicals. Part 4:  
Saccharomyces cerevisiae mitotic recombination assay**

进出口危险化学品安全试验方法 第4部分：酿酒酵母有丝分裂重组试验

**(English Translation)**

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### Foreword

SN/T 2497 "Test Methods for Chemical Safety & Exports dangerous" series of standards is divided into 29 parts.

- Part 1. mammalian liver cells in vivo DNA synthesis (UDS) test;
- Part 2. plaque-forming cells (PFC) test;
- Part 3. Large Zhuan reproduction test;
- Part 4. *Saccharomyces cerevisiae* mitotic recombination test;
- Part 5. testicular cells UDS test;
- Part 6. mammalian cells in vitro sister chromatid exchange test;
- Part 7. mouse ear swelling test;
- Part --- Article 8. fossa lymph node assay;
- Part 9. Determination of serum hemolysin test;
- Part --- Article 10. T lymphocyte proliferation assay test;
- Part 11. germline mutation assay;
- Part 12. single cell gel electrophoresis test;
- Part 13. fluorescence in situ hybridization;
- Part --- Article 14. SDS- polyacrylamide gel electrophoresis;
- Part 15. PCR-SSCP experiment;
- Part --- Article 16. Western-Blot test;
- Part 17. Behavior of mammalian toxicology tests;
- Part 18. Detection of DNA adducts;

- Part 19. NorthernBlot experiment;
- Part 20. Bradford protein assay;
- Part 21. agarose gel electrophoresis;
- Part 22. T<sub>m</sub> value determination method of DNA;
- Part 23. organelle separation experimental methods;
- Part 24. cellular immunity in vitro assay method;
- Part 25. humoral immune function tests;
- Part 26. macrophage function tests;
- Part 27. Flow cytometry of apoptosis;
- Part 28. Application shuttle plasmid mutations Inspection;
- Part 29. Biochemical Oxygen Demand (BOD) was measured.

This section SN/T 2497 Part 4.

The partial modification of the use of the Organization for Economic Cooperation and Development (OECD) Chemicals testing guidelines NO. 481 "Saccharomyces cerevisiae mitotic recombination test Test ", the technical content of the above-described method is completely the same, in a standard text format according to GB/T 1.1-2000 made editorial changes.

This section proposed and managed by the National Certification and Accreditation Administration Committee.

This section is responsible for drafting unit. People's Republic of China Tianjin Entry-Exit-Entry Inspection and Hunan People's Republic of China Quarantine Bureau.

## 1 Scope

This section SN/T 2497 provides for the import and export of hazardous chemicals Saccharomyces cerevisiae mitotic recombination test principle of the test, the test Procedures and test results.

This section applies to the determination whether the import and export of hazardous chemicals caused eukaryotic microorganisms yeast mitotic recombination.

## 2 Terms and definitions

The following terms and definitions apply to this section.

Exchange of DNA fragments between gene (generally between a gene and its centromere), leading product interaction.

Information unidirectional sequence within a gene transfer, the main cause of non-interactive product.

### Principle 3

Some change the performance characteristics and growth characteristics to detect whether the test substance caused a eukaryotic microorganisms yeast mitotic recombination. Mitotic You can split the recombinant yeast genes within and between the same gene, the former is called the exchange, which is called a conversion.

3.2 Test mitotic exchange is generated by the hybrid strain colonies or sub-colonies homozygous recessive confirmed; and mitosis turn Change is on the same gene by carrying produce prototrophy restored two different defective alleles auxotrophic strains heterozygous Body confirmed.

3.3 utilizing diploid strains of *S. cerevisiae* D4 grown in selective media characteristic detecting mitotic gene conversion. *ade2-2*, *ade2-1*; *trp5-12* and *trp5-27* is different alleles *ade2* and *trp5* on site. These alleles mitotic gene Change, resulting in a carrying wild-type allele native type colonies, can in the absence of tryptophan (*trp*) or adenine selective training Support group on growth.

3.4 yeast strains mitosis exchange by observing the color change D5 or D7 strain colonies (homozygous produce red or pink Mitosis exchange) or observation D7 strains cycloheximide resistance (*cyhr2*) on a medium containing cycloheximide growth detected.

## 4.1 Test Method

### 4.1.1

The most common strain of diploid D5, spontaneous D7, D4 and JD1 strains used passaging culture strains mitotic recombination frequency Rate should be within the acceptable normal range.

### 4.1.2

The selection of the appropriate medium (YEPD, SMM, SCM and selective medium) at different stages of the test strain culture test to Determine its viability and mitotic recombination frequencies.

### 4.1.3

Cells should be in the presence and absence of exogenous mammalian metabolic activation system is exposed, the most common metabolic activation system is a rodent Prepared animal liver S9 mixture.