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STANDARD

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JIS K 7118 : 1995

**General rules for testing fatigue  
of rigid plastics**

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ICS 83.080.01

**Descriptors** : rigidity, plastics, fatigue testing

**Reference number** : JIS K 7118 : 1995 (E)

## Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

Date of Establishment: 1972-10-01

Date of Revision: 1995-05-01

Date of Public Notice in Official Gazette: 1995-05-01

Investigated by: Japanese Industrial Standards Committee

Divisional Council on High Molecular  
Materials

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In the event of any doubts arising as to the contents,  
the original JIS is to be the final authority.

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# General Rules for Testing Fatigue of Rigid Plastics

## 1. Scope

This Japanese Industrial Standard specifies the general rules for testing method for the fatigue of rigid plastics<sup>(1)</sup>, hereinafter referred to as the "plastics".

Note (1) The rigid plastics referred to herein mean such plastics as can be tested under the conditions specified in this standard.

Remarks 1 Applicable Standards:

JIS B 7502-Micrometer Callipers

JIS B 7503-Dial Gauges

JIS B 7507-Vernier, Dial and Digital Callipers

JIS K 6900-Plastics—Vocabulary

JIS Z 8401-Rules for Rounding off of Numerical Values

Reference Standard:

JIS Z 8203-SI Units and the Use of their Multiples and of Certain Other Units

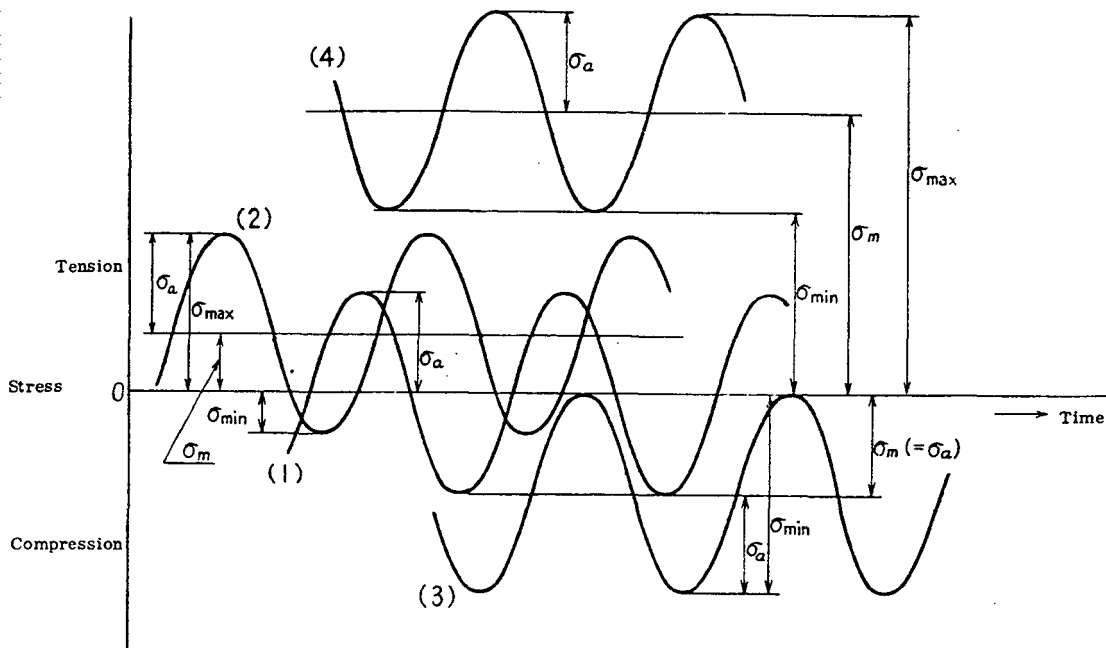
- 2 The units shown in braces { } in this standard are based on the conventional system of units and are attached for reference.

## 2. Definitions

For the purposes of this standard the following definitions together with those specified in JIS K 6900 apply.

The symbols used shall be as shown in Fig. 1.

Fig. 1



- |                                     |                                 |
|-------------------------------------|---------------------------------|
| (1) Completely reversed fluctuation | $\sigma_m$ : Mean stress        |
| (2) Partially reversed fluctuation  | $\sigma_a$ : Stress amplitude   |
| (3) Pulsating fluctuation from zero | $\sigma_{max}$ : Maximum stress |
| (4) Pulsating fluctuation           | $\sigma_{min}$ : Minimum stress |

(The same applies to symbols concerning  $\tau$ )

### (1) terms concerning stress and number of cycles

(1.1) stress (nominal stress) The stress (MPa) {kgf/mm<sup>2</sup>} calculated based simply on the elastic theory without taking into consideration stress concentration due to a notch or the like. The vertical stress is expressed by  $\sigma$ , and the shearing stress, by  $\tau$ .

(1.2) repeated stress A stress changing periodically between the definite maximum value and the definite minimum value.

(1.3) maximum stress and minimum stress  $\sigma_{max}$ ,  $\tau_{max}$ ,  $\sigma_{min}$  and  $\tau_{min}$   
The maximum and minimum values of a repeated stress in which the positive and negative signs <sup>(2)</sup> are taken into consideration.

Note <sup>(2)</sup> In the case of tension and compression, the tensile stress is taken as positive and the compressive stress as negative.