

## WHEAT STARCH

### *Tritici amylum*

#### DEFINITION

Wheat starch is obtained from the caryopsis of *Triticum aestivum* L. (*T. vulgare* Vill.).

#### CHARACTERS

A very fine white powder which creaks when, pressed between the fingers; practically insoluble in cold water and in alcohol. Wheat starch does not contain starch grains of any other origin. It may contain a minute quantity, if any, of fragments of the tissue of the original plant.

#### IDENTIFICATION

- A. Examined under a microscope using equal volumes of *glycerol* R and *water* R, it presents large and small granules, and, very rarely; intermediate sizes. The large granules, 10 µm to 45 µm in diameter, are discoid or, more rarely, reniform when seen face-on. The central hilum and striations are invisible or barely visible and the granules sometimes show cracks on the edges. Seen in profile, the granules are elliptical and fusiform and the hilum appears as a slit along the main axis. The small granules, rounded or polyhedral, are 2 µm to 10 µm in diameter. Between crossed nicol prisms, the granules show a distinct black cross intersecting at the hilum.
- B. Suspend 1 g in 50 ml of *water* R, boil for 1 min and cool. A thin cloudy mucilage is formed.
- C. To 1 ml of the mucilage obtained in identification test B, add 0.05 ml of *iodine solution* R1. A dark-blue colour is produced which disappears on heating.

#### TESTS

**pH** (2.2.3). Shake 5.0 g with 25.0 ml of *carbon dioxide-free water* R for 60 s. Allow to stand for 15 min. The pH of the solution is 5.0 to 8.0.

**Iron** (2.4.9) Shake 1.5 g with 15 ml of *dilute hydrochloric acid* R. Filter. The filtrate complies with the limit test for iron (10ppm).

**Foreign matter** (2.8.2). Examined under a microscope using a mixture of equal volumes of *glycerol* R and *water* R, not more than traces of cell walls and of cytoplasmic residues are present.

**Total protein**. Not more than 0.3 per cent of total protein (corresponding to 0.048 per cent N<sub>2</sub>, conversion factor: 5.7), determined on 6.0 g by sulphuric acid digestion (2.5.9) modified as follows: wash any adhering particles from the neck into the flask with 25 ml of *sulphuric acid* R; continue the heating until a

clear solution is obtained; add 45 ml of *strong sodium hydroxide solution* R.

**Oxidising substances** (2.5.30). It complies with the test for oxidising substances.

**Sulphur dioxide** (2.5.29). Not more than 50 ppm.

**Loss on drying** (2.2.32). Not more than 15.0 per cent, determined on 1.000 g by drying in an oven at 130 °C for 90 min.

**Sulphated ash**. (2.4.14). Not more than 0.6 per cent, determined on 1.0 g.

**Microbial contamination**. Total viable aerobic count (2.6.12) not more than 10<sup>3</sup> bacteria and not more than 10<sup>2</sup> fungi per gram, determined by plate-count. It complies with the test for *Escherichia coli* (2.6.13)