

INTERNATIONAL STANDARD

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Rubber and rubber products — Determination of bromine and chlorine content — Oxygen flask combustion technique

*Caoutchouc et produits à base de caoutchouc — Détermination de la
teneur en brome et en chlore — Technique de combustion dans une fiole
en présence d'oxygène*



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Foreword

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Introduction

This International Standard describes an oxygen flask combustion technique for the destruction of rubber, followed by either a potentiometric titration for chlorine and bromine if they occur singly or together, or a visual titration for bromine only or chlorine only.

Mutual interference, caused by co-precipitation, can be a problem in the potentiometric titration with silver nitrate. This is largely overcome though not completely eliminated by the addition of aluminium nitrate. The problem is least when bromine is in excess. At its worst, when chlorine is in excess, the bromine concentration may appear high, to an extent of 5 % of the chlorine content. The problem may be minimized by carrying out the titration at 60 °C, and keeping the rate of addition of titrant to a minimum.

During combustion of bromine-containing compounds, a small proportion of the bromine appears as bromate instead of bromide. Bromine results can therefore be low by about 1 % of the bromine content. This can be overcome in the case of the potentiometric finish only by treating the solution obtained on combustion with hydrazine sulfate.

The potentiometric titration (see 7.2.1) is sensitive down to 6 µg of bromine or 3 µg of chlorine when these are present singly.

The visual titration (see 7.2.2) lower limits are down to 0,2 mg of bromine or 0,1 mg of chlorine. When both chlorine and bromine are present, the lower limits are 60 µg of bromine and 30 µg of chlorine. These limits are dependent on the electrical sensitivities of the individual instruments used (see 5.3 to 5.5).