

# ISO 29904:2013-09 (E)

## Fire chemistry - Generation and measurement of aerosols

---

<b>Contents</b>		<b>Page</b>
Foreword .....		iv
Introduction .....		v
<b>1</b>	<b>Scope .....</b>	<b>1</b>
<b>2</b>	<b>Normative references .....</b>	<b>1</b>
<b>3</b>	<b>Terms, definitions, symbols and abbreviated terms .....</b>	<b>2</b>
<b>3.1</b>	<b>Terms and definitions .....</b>	<b>2</b>
<b>3.2</b>	<b>Symbols and abbreviated terms .....</b>	<b>2</b>
<b>4</b>	<b>Aerosol properties .....</b>	<b>3</b>
<b>4.1</b>	<b>General .....</b>	<b>3</b>
<b>4.2</b>	<b>Movement and evolution of fire aerosol .....</b>	<b>4</b>
<b>4.3</b>	<b>Measurable properties of aerosols .....</b>	<b>5</b>
<b>5</b>	<b>Methods of measurement .....</b>	<b>11</b>
<b>5.1</b>	<b>Applications .....</b>	<b>11</b>
<b>5.2</b>	<b>Categories of aerosol measurement .....</b>	<b>12</b>
<b>5.3</b>	<b>Initial considerations for sampling and analysis of aerosols .....</b>	<b>19</b>
<b>5.4</b>	<b>Selection of methods .....</b>	<b>20</b>
<b>5.5</b>	<b>In situ measurement methods .....</b>	<b>21</b>
<b>5.6</b>	<b>Extractive measurement methods .....</b>	<b>27</b>
<b>6</b>	<b>Aerosol measurement metrology .....</b>	<b>43</b>
<b>6.1</b>	<b>Standard aerosol generators for calibration of instrumentation .....</b>	<b>43</b>
<b>6.2</b>	<b>Qualification (Verification) of generators .....</b>	<b>45</b>
<b>6.3</b>	<b>Calibration methods exigencies .....</b>	<b>46</b>
<b>6.4</b>	<b>Validation .....</b>	<b>47</b>
<b>7</b>	<b>Presentation of results .....</b>	<b>51</b>
<b>7.1</b>	<b>Calculations .....</b>	<b>51</b>
<b>7.2</b>	<b>Measurement report .....</b>	<b>53</b>
<b>7.3</b>	<b>Uncertainties .....</b>	<b>53</b>
	<b>Annex A (informative) Experimental measurements of <math>D_{pp}</math>, <math>N_{pp}</math>, <math>R_g</math>, <math>D_f</math> and <math>k_f</math> .....</b>	<b>55</b>
	<b>Annex B (informative) Adsorption of combustion gases on particles .....</b>	<b>57</b>
	<b>Annex C (informative) Inhalation dynamics and toxicity of particles .....</b>	<b>60</b>
	<b>Annex D (informative) Non-toxicological effects of particles .....</b>	<b>64</b>
	<b>Annex E (informative) Example of report .....</b>	<b>65</b>
	<b>Bibliography .....</b>	<b>68</b>