

# ISO 11119-2:2012-07 (E)

## Gas cylinders - Refillable composite gas cylinders and tubes - Design, construction and testing - Part 2: Fully wrapped fibre reinforced composite gas cylinders and tubes up to 450 l with load-sharing metal liners

---

<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 and definitions .....</b>	<b>2</b>
<b>4</b>	<b>Symbols .....</b>	<b>4</b>
<b>5</b>	<b>Inspection and testing .....</b>	<b>4</b>
<b>6</b>	<b>Materials .....</b>	<b>4</b>
<b>6.1</b>	<b>Liner materials .....</b>	<b>4</b>
<b>6.2</b>	<b>Composite materials .....</b>	<b>5</b>
<b>7</b>	<b>Design and manufacture .....</b>	<b>5</b>
<b>7.1</b>	<b>General .....</b>	<b>5</b>
<b>7.2</b>	<b>Design submission .....</b>	<b>5</b>
<b>7.3</b>	<b>Manufacturing .....</b>	<b>6</b>
<b>8</b>	<b>Type approval procedure .....</b>	<b>7</b>
<b>8.1</b>	<b>General requirements .....</b>	<b>7</b>
<b>8.2</b>	<b>Prototype tests .....</b>	<b>7</b>
<b>8.3</b>	<b>New design .....</b>	<b>8</b>
<b>8.4</b>	<b>Design variants .....</b>	<b>9</b>
<b>8.5</b>	<b>Type approval test procedures and criteria .....</b>	<b>10</b>
<b>9</b>	<b>Batch inspection and testing .....</b>	<b>22</b>
<b>9.1</b>	<b>Liner .....</b>	<b>22</b>
<b>9.2</b>	<b>Failure of liner batch tests .....</b>	<b>23</b>
<b>9.3</b>	<b>Overwrap materials .....</b>	<b>23</b>
<b>9.4</b>	<b>Composite cylinder .....</b>	<b>23</b>
<b>9.5</b>	<b>Cylinder failure during type approval or batch testing .....</b>	<b>24</b>
<b>10</b>	<b>Cylinder marking .....</b>	<b>25</b>
<b>10.1</b>	<b>General .....</b>	<b>25</b>
<b>10.2</b>	<b>Additional marking .....</b>	<b>25</b>
<b>Annex A (informative) Examples of design approval certificate .....</b>		<b>26</b>
<b>Annex B (informative) Specimen test reports .....</b>		<b>27</b>
<b>Bibliography .....</b>		<b>30</b>