


<b>PROJECT :</b>			<b>DATE :</b>	5-Mar-11
<b>CLIENT:</b>			<b>BY :</b>	
<b>PROJ. NO. :</b>			<b>REV :</b>	
<b>UNIT :</b>			<b>DOC NO.:</b>	


### Atmospheric Tank Normal Venting Calculation (Inbreathing)

<b>Tank Inputs</b>		
Tank Volume	m <sup>3</sup>	11095
Pump Out Rate	m <sup>3</sup> /h	2107
Latitude	°	25
Average Storage Temp	°C	40
Vapor pressure	equal or less than Hexane	

<b>Insulation Inputs</b>		
Insulation Thickness	m	0
Thermal Cond. of Insulation	W/mK	0.05
Inside heat transfer coefficient	W/m <sup>2</sup> K	4
Tank total surface area	m <sup>2</sup>	2260.8
Insulated surface area	m <sup>2</sup>	2260.8

<b>Calculation Results</b>		
Liquid movement inbreathing Rate	Nm <sup>3</sup> /h	2107
C-Factor	----	6.5
Reduction factor	----	1.00
Thermal inbreathing Rate	Nm <sup>3</sup> /h	4410.6
<b>Total Inbreathing Rate</b>	<b>Nm<sup>3</sup>/h</b>	<b>6517.6</b>

<b>Note</b>

<b>PROJECT :</b>			<b>DATE :</b>	5-Mar-11
<b>CLIENT:</b>			<b>BY :</b>	
<b>PROJ. NO. :</b>			<b>REV :</b>	
<b>UNIT :</b>			<b>DOC NO.:</b>	

**Atmospheric Tank Normal Venting Calculation (Outbreathing)**

<b>Tank Inputs</b>		
Tank Volume	m <sup>3</sup>	11095
Pump-in Rate	m <sup>3</sup> /h	2107
Latitude	°	25
Evaporation Rate	Nm <sup>3</sup> /hr	0
Flashing Rate	Nm <sup>3</sup> /hr	971

<b>Insulation Inputs</b>		
Insulation Thickness	m	0
Thermal Conduction of Insulation	W/mK	0.05
Inside heat transfer coefficient	W/m <sup>2</sup> K	4
Tank total surface area	m <sup>2</sup>	2260.8
Insulated surface area	m <sup>2</sup>	2260.8

<b>Calculation Results</b>		
Liquid movement out breathing	Nm <sup>3</sup> /h	2107
Y-Factor	----	0.32
Reduction factor	----	1.00
Thermal Outbreathing Rate	Nm <sup>3</sup> /h	1398.8
<b>Total Outbreathing Rate</b>	<b>Nm<sup>3</sup>/h</b>	<b>4476.8</b>

<b>Note</b>