



## Carbon Dioxide Specifications\*

Directory of limiting characteristics / QVL's  
(Units in ppm (v/v) unless otherwise stated)

Limiting Characteristics	GRADE				
	<i>Medical (USP)*</i>	<i>General*</i>	<i>Food*</i>	<i>Beverage*</i>	<i>Dry Ice*</i>
Carbon Dioxide min. % (v/v)	99	99	99.5	99.9	
Acetaldehyde		0.5	0.5	0.2	
Ammonia	25			2.5	
Acidity				To Pass JECFA test <sup>(1)</sup>	
Benzene				0.02	
Carbon Monoxide	10 (vapor) <sup>(2)</sup>		10	10	
Carbonyl Sulfide			0.5	(3)	
Hydrogen Cyanide				None Detected <sup>(4)</sup>	
Methanol				10	
Nitric Oxide	2.5 (vapor) <sup>(2)</sup>		5 (total of NO + NO <sub>2</sub> )	2.5	
Nitrogen Dioxide	2.5			2.5	
Oxygen		50	50	30	
Phosphine <sup>(5)</sup>				0.3	
Sulfur Dioxide	5		5	(3)	
Total Sulfur		0.5	0.5	0.1 <sup>(3)</sup>	
Total Hydrocarbon Content (as methane)		50	50	50 max including 20 max of nonmethane hydrocarbons	
Hydrogen Sulfide	1 (vapor) <sup>(2)</sup>		0.5 (vapor)	(2)	
Color					white opaque
Nonvolatile residues (wt/wt)		10	10	10	500
Oil / Grease (wt/wt)				5	
Odor / Taste	Free of foreign odor or taste				
Water	200	32	20	20	
Dew Point °F	<u>-33</u>	<u>-61</u>	<u>-68</u>	<u>-68</u>	
°C	<u>-36.1</u>	<u>-51.7</u>	<u>-55.6</u>	<u>-55.6</u>	

NOTE: A blank indicates no maximum limiting characteristic

- (1) Due to lack of sensitivity, this test is not required if the assay results are acceptable
- (2) The use of vapor samples is required for USP. Also, the detection of impurities is determined based on the physical characteristics of the individual impurity and need to accurately represent the physical partitioning of impurities
- (3) If the total sulfur content exceeds 0.1 ppm (v/v) as sulfur, then the species shall be determined separately and the following limits apply
- |                         |                          |
|-------------------------|--------------------------|
| <i>Carbonyl sulfide</i> | <i>0.1 ppm (v/v) max</i> |
| <i>Hydrogen sulfide</i> | <i>0.1 ppm (v/v) max</i> |
| <i>Sulfur dioxide</i>   | <i>0.1 ppm (v/v) max</i> |
- (4) Applies only to carbon dioxide from coal gasification and combustion sources. Current detection level is 0.5 ppm
- (5) Applies only to carbon dioxide from phosphate rock sources

\* All information on specifications was obtained from CGA G-6.2 (2004)