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1. The explosive range of methane is \_\_\_\_\_\_\_\_\_\_.
2. 2% to 10%
3. 2% to 15%
4. 5% to 15%
5. 5% to 10%
6. A flame safety lamp will go out when the oxygen percentage falls below \_\_\_\_\_\_\_\_\_.
7. 19.5%
8. 17.0%
9. 16.5%
10. 16.0%
11. The explosive range of carbon monoxide is \_\_\_\_\_\_\_\_\_\_\_\_.
12. 5% to 15%
13. 4.5% to 74%
14. 12.5% to 74%
15. carbon monoxide is not explosive
16. Hydrogen sulfide is a gas that smells like rotten eggs.
17. True
18. False
19. The specific gravity of carbon dioxide is \_\_\_\_\_\_\_\_\_.
20. 0.555
21. 0.967
22. 1.192
23. 1.529
24. The ignition temperature of carbon monoxide is 1380 degrees F.
25. True
26. False
27. Carbon monoxide unites with the \_\_\_\_\_\_\_\_\_\_ of the blood.
28. red blood cells
29. white blood cells
30. hemoglobin
31. platelets
32. \_\_\_\_\_\_\_\_\_\_\_ of carbon monoxide will produce symptoms of unconsciousness in 30 minutes.
33. 200-300 ppm
34. 400-600 ppm
35. 1000-2000 ppm
36. 2000-3000 ppm
37. Workers should NOT be employed for a period of 8 hours where the carbon monoxide content exceeds \_\_\_\_\_\_\_\_\_\_\_\_.
38. 5 ppm
39. 10 ppm
40. 50 ppm
41. 100 ppm
42. The least percentage of methane that can be detected with a flame safety lamp is \_\_\_\_\_\_\_\_\_.
43. 0.25%
44. 0.50%
45. 1.00%
46. methane cannot be detected with a flame safety lamp
47. The specific gravity of methane is \_\_\_\_\_\_\_\_\_.
48. 0.555
49. 0.967
50. 1.192
51. 1.529
52. Methane needs to have oxygen present to be explosive.
53. True
54. False
55. Maximum explosive violence of methane is at \_\_\_\_\_\_\_\_.
56. 5%
57. 8%
58. 10%
59. 15%
60. No explosion of a methane-air mixture can occur if the oxygen level falls below \_\_\_\_\_\_\_\_.
61. 19.5%
62. 16.0%
63. 14.5%
64. 12.0%
65. When a methane explosion unites with coal dust, it becomes less violent.
66. True
67. False
68. In a mine environment, methane is most likely to be found \_\_\_\_\_\_\_\_\_.
69. near the bottom
70. near the roof
71. in return areas only
72. in intake areas only
73. \_\_\_\_\_\_\_% of carbon monoxide can cause death in less than one hour.
74. 4.0%
75. 0.4%
76. 2.0%
77. 0.2%
78. How does oxides of nitrogen cause death?
79. cause fluids to be built up in the lungs
80. combines with hemoglobin in the blood
81. causes massive bleeding
82. creates air embolisms in the bloodstream
83. Which is NOT a source of hydrogen in coal mines?
84. mine fires
85. explosions
86. charging batteries
87. rotting timber
88. The chemical symbol for methane is \_\_\_\_\_\_\_\_\_.
89. H2S
90. CH4
91. N2
92. N2S
93. The chemical symbol for hydrogen sulfide is \_\_\_\_\_\_\_\_.
94. H2S
95. CH4
96. N2
97. N2S
98. What percentage of the earth's atmosphere is oxygen?
99. 78.09%
100. 16.50%
101. 4.25%
102. 20.94%
103. What percentage of the earth's atmosphere is nitrogen?
104. 78.09%
105. 16.50%
106. 4.25%
107. 20.94%
108. If two or more gases mix uniformly, will they separate or come apart?
109. Yes
110. No
111. The chemical symbol for carbon dioxide is \_\_\_\_\_\_\_.
112. CO
113. CH4
114. CO2
115. C2H4
116. What element in the air is essential to life?
117. hydrogen
118. nitrogen
119. helium
120. oxygen
121. The term black damp means \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
122. moist air in a coal mine
123. oxygen deficient
124. after effects of a mine explosion
125. wet coal
126. Methane can be detected by \_\_\_\_\_\_\_\_\_\_\_\_.
127. chemical analysis
128. CH4 detector
129. all of the above
130. The explosive range of carbon monoxide is \_\_\_\_\_\_\_\_\_\_\_.
131. 4.3% to 45%
132. 5% to 15%
133. 9% to 11%
134. 12.5% to 74%
135. \_\_\_\_\_\_\_\_\_\_\_\_ is a flammable mixture of methane and air which can either burn or explode when ignited.
136. blackdamp
137. whitedamp
138. firedamp
139. stinkdamp
140. A sealed area of a coal mine after a period of time will be found to have the absence of \_\_\_\_\_\_\_\_\_\_\_\_.
141. nitrogen
142. oxygen
143. carbon dioxide
144. hydrogen
145. Oxides of nitrogen in coal mines are formed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
146. rotting wood
147. charging batteries
148. use of explosives
149. none of the above
150. The ignition temperature of methane is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
151. 500 to 1500 degrees F
152. 900 to 1100 degrees F
153. 1100 to 1380 degrees F
154. 1100 to 1300 degrees F
155. The ignition temperature of carbon monoxide is \_\_\_\_\_\_\_\_\_\_\_\_\_.
156. 900 degrees F
157. 1100 degrees F
158. 1380 degrees F
159. carbon monoxide is not combustible
160. What is the specific gravity of hydrogen?
161. 0.0695
162. 0.555
163. 1.091
164. 1.529
165. The explosive range of hydrogen is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
166. 5% to 15%
167. 4.3% to 45%
168. 12.5% to 74%
169. 4.1% to 74%
170. Hydrogen is detected by chemical analysis.
171. True
172. False
173. The principal poisonous gas produced by an explosion is \_\_\_\_\_\_\_\_.
174. methane
175. carbon monoxide
176. carbon dioxide
177. hydrogen sulfide
178. What percentage of carbon monoxide will produce slight symptoms after several hours?
179. 100 ppm (.01%)
180. 200 ppm (.02%)
181. 300 ppm (.03%)
182. 400 ppm (.04%)
183. What percentage of carbon monoxide will produce discomfort in 2 or 3 hours?
184. 400 ppm (.04%)
185. 600 ppm (.06%)
186. 800 ppm (.08%)
187. 1000 ppm (.1%)
188. The chemical symbol for carbon monoxide is \_\_\_\_\_\_\_.
189. CO
190. C2O
191. CO2
192. C2O2
193. What percent of carbon monoxide will produce a tendency to stagger in 90 minutes?
194. 1000 ppm (.1 %)
195. 1200 ppm (.12%)
196. 1400 ppm (.14%)
197. 1600 ppm (.16%)
198. What percentage of carbon monoxide will render a person unconscious in 30 minutes?
199. 1200 to 1600 ppm (.12% to .16%)
200. 1600 to 2000 ppm (.16% to .2%)
201. 2000 to 2500 ppm (.2% to .25%)
202. 2500 to 3000 ppm (.25% to .3%)
203. How much greater affinity does hemoglobin have for carbon monoxide than oxygen?
204. 100 times
205. 200 times
206. 300 times
207. 400 times
208. Why are small amounts of carbon monoxide injurious?
209. a small amount can build up a large amount of fluid in the lungs
210. carbon monoxide is not easily dispelled from the bloodstream
211. a small embolism in the bloodstream can kill
212. a small amount can cause a massive hemorrhage
213. The specific gravity of carbon monoxide is \_\_\_\_\_\_\_\_.
214. 0.967
215. 1.091
216. 1.529
217. 1.259
218. Carbon monoxide can be detected with a flame safety lamp.
219. True
220. False
221. Carbon monoxide is colorless, odorless, tasteless, combustible and poisonous.
222. True
223. False
224. Workers should NOT be employed for a period of 8 hours where the carbon monoxide level exceeds \_\_\_\_\_\_\_\_\_\_\_.
225. 25 ppm (.0025%)
226. 50 ppm (.005%)
227. 75 ppm (.0075%)
228. 100 ppm (.01%)
229. What percent of carbon monoxide might produce symptoms of poisoning if breathed indefinitely?
230. 0.01%
231. 0.02%
232. 0.03%
233. 0.04%
234. Carbon monoxide is the product of incomplete combustion.
235. True
236. False
237. Convert 0.01% of carbon monoxide to ppm.
238. 10 ppm
239. 100 ppm
240. 1000 ppm
241. 10000 ppm
242. What percentage of blood saturation by carbon monoxide will cause death?
243. 5% to 15%
244. 30% to 40%
245. 60% to 70%
246. 70% to 80%
247. What is the specific gravity of methane?
248. 0.555
249. 0.967
250. 1.091
251. 1.529
252. Methane is found in the coal seam and the surrounding strata.
253. True
254. False
255. There can be no methane explosion when the methane content is over 15%.
256. True
257. False
258. What is the percentage of oxygen below which no explosion of methane and air mixture can occur?
259. 19%
260. 15%
261. 12%
262. 10%
263. A greater percentage of methane is necessary to start an explosion in an atmosphere which contains less than the normal percentage of oxygen.
264. True
265. False
266. What effect does the presence of methane have upon the explosibility of coal dust?
267. the coal dust is ignited less easily.
268. the coal dust is more easily ignited and the force of the explosion is greater.
269. methane does not affect the explosibility of coal dust.
270. none of the above.
271. One cubic foot of methane is lighter than one cubic foot of air.
272. True
273. False
274. What gas is most likely found above a pillar fall?
275. carbon monoxide
276. methane
277. carbon dioxide
278. hydrogen sulfide
279. Which gas can accumulate along the bottom in unventilated areas?
280. carbon monoxide
281. methane
282. carbon dioxide
283. hydrogen sulfide
284. Carbon dioxide is detected by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
285. feeling light headed
286. flame safety lamp
287. carbon dioxide detector
288. chemical analysis
289. Carbon dioxide is a colorless, odorless gas formed by the chemical combination of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
290. carbon and oxygen
291. carbon and dioxin
292. carbon and methane
293. none of the above
294. Carbon dioxide is a product of incomplete combustion.
295. True
296. False
297. Is carbon dioxide combustible?
298. Yes
299. No
300. What supports the chemical reaction that produces fires and explosions?
301. Carbon Monoxide
302. Carbon Dioxide
303. Oxygen
304. Hydrogen Sulfide
305. What is the normal percentage of oxygen found in the atmosphere?
306. 79.2%
307. 20.9%
308. 19.5%
309. 17.0%
310. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a tasteless, odorless and colorless gas that neither support life or combustion.
311. Oxygen
312. Hydrogen Sulfide
313. Nitrogen
314. None of the above
315. Where might accumulations of carbon dioxide be found?
316. along the roof line
317. at the face area
318. near the floor at inadequately ventilated places
319. near standing bodies of water
320. Carbon Dioxide is a product of complete combustion.
321. True
322. False
323. The specific gravity of carbon dioxide is \_\_\_\_\_\_\_\_\_\_\_\_.
324. 0.555
325. 0.967
326. 1.192
327. 1.529
328. There can be a mine fire without the presence of oxygen.
329. True
330. False
331. \_\_\_\_\_\_\_\_\_\_\_\_ is a phenomenon by which gases mix by natural forces.
332. Stratification
333. Homodulation
334. Integration
335. Diffusion
336. CH4, CO and H2S are all explosive gases.
337. True
338. False
339. The gas which is generated from a storage battery is \_\_\_\_\_\_\_\_.
340. CH4
341. H2S
342. H2
343. N2
344. Any gas which is harmful to life when inhaled is an obnoxious gas.
345. True
346. False
347. What mine gas can be detected by odor?
348. sulfur dioxide
349. hydrogen sulfide
350. hydrogen dioxide
351. hydrogen monoxide
352. What does the presence of CO in a sealed mine indicate?
353. large amounts of water
354. methane liberation
355. a roof fall
356. a fire
357. What is the specific gravity of hydrogen sulfide?
358. 0.555
359. 0.967
360. 1.191
361. 1.529
362. What is the explosive range of hydrogen sulfide?
363. 5% to 15%
364. 4.3% to 45%
365. 12% to 74%
366. 45% to 72%
367. The specific gravity of sulfur dioxide is \_\_\_\_\_\_\_\_\_\_.
368. 1.192
369. 1.529
370. 2.263
371. 3.074
372. A diffused atmosphere is easier to detect gases than a stratified atmosphere.
373. True
374. False
375. A person will breathe faster and deeper while working in \_\_\_\_% of O2?
376. 79.2%
377. 20.9%
378. 19.5%
379. 17.0%
380. Is nitrogen combustible?
381. Yes
382. No
383. Nitrogen has no effect toward propagating an explosion.
384. True
385. False
386. What is the ignition temperature of nitrogen?
387. 1100 to 1300 degrees F.
388. 1100 to 1380 degrees F.
389. 700 degrees F.
390. nitrogen has no ignition temperature
391. The threshold limit value for oxides of nitrogen is \_\_\_\_\_\_\_\_.
392. 5 ppm
393. 10 ppm
394. 50 ppm
395. 81 ppm
396. The threshold limit value of nitrogen is \_\_\_\_\_\_\_\_.
397. 5%
398. 10%
399. 50%
400. 81%
401. Mine air should NOT contain less than \_\_\_\_\_\_% O2.
402. 19.5
403. 17.0
404. 16.5
405. 16.0
406. The threshold limit value of H2S is \_\_\_\_\_\_\_\_.
407. 5 ppm
408. 10 ppm
409. 50 ppm
410. 81 ppm
411. What supports the chemical reaction that produces fires and explosions?
412. carbon monoxide
413. carbon dioxide
414. oxygen
415. hydrogen sulfide
416. How is sulfur dioxide formed in a mine?
417. by burning coal containing pyrites
418. by rotting timbers and wooden pipes
419. by charging batteries underground
420. it is a by-product of methane
421. The specific gravity of sulfur dioxide is \_\_\_\_\_\_\_\_\_\_.
422. 1.529
423. 2.101
424. 1.191
425. 2.263
426. Sulfur dioxide is a harmless gas.
427. Yes
428. No
429. How is sulfur dioxide primarily detected?
430. smell
431. taste
432. sight
433. flame safety lamp
434. Is sulfur dioxide combustible?
435. Yes
436. No
437. The chemical symbol for sulfur dioxide is \_\_\_\_\_\_\_\_.
438. H2S
439. SO2
440. S2O
441. H2O
442. Hydrogen sulfide is a by-product of the use of explosives.
443. True
444. False
445. Hydrogen sulfide is primarily detected by \_\_\_\_\_\_\_\_\_\_.
446. sight
447. smell
448. taste
449. flame safety lamp
450. The specific gravity of hydrogen sulfide is \_\_\_\_\_\_\_\_\_.
451. 1.191
452. 1.529
453. 2.263
454. 2.623
455. What is the explosive range of Hydrogen Sulfide?
456. 4.3% to 45%
457. 12.5% to 74%
458. 5% to 15%
459. 4.3% to 12.5%
460. Hydrogen sulfide is NOT poisonous.
461. True
462. False
463. Hydrogen sulfide is water soluble.
464. True
465. False
466. What is the chemical symbol for methane?
467. CO2
468. CO
469. C2H
470. CH4
471. What percentage of blood saturation by CO will cause death?
472. 10% to 20%
473. 40% to 50%
474. 70% to 80%
475. CO saturation will not cause death
476. What is meant by gas diffusion?
477. gases separate naturally
478. gases unite naturally
479. gases mix naturally
480. gases explode
481. The rate of gas diffusion varies directly as the square root of their specific gravity.
482. True
483. False
484. Which gas is generated from a storage battery?
485. H2
486. H2S
487. SO2
488. SO
489. What two gases are non-explosive?
490. CH4 and CO
491. CO2 and CH4
492. CO2 and N2
493. CO and N2
494. Which explosive gases are found in bituminous coal mines?
495. CH4, CO, and H2S
496. CH4, N2, and CO
497. CO2, CH4, and N2
498. H2S, CO, and SO2
499. Is CH4 poisonous?
500. Yes
501. No
502. Which gas has the lowest ignition temperature?
503. CH4
504. H2S
505. CO
506. N2
507. What type of atmosphere would it be easier to detect a noxious gas?
508. stratified
509. diffused
510. The flame in a flame safety lamp will \_\_\_\_\_\_\_\_\_ when black damp is encountered.
511. burn brighter
512. go out
513. turn blue
514. do nothing
515. Stink damp refers to \_\_\_\_\_\_\_\_.
516. H2
517. H2S
518. SO2
519. SO
520. Convert .01% of CO into ppm.
521. 1 ppm
522. 10 ppm
523. 100 ppm
524. 1000 ppm
525. A gallon of water weighs \_\_\_\_\_\_\_\_\_\_\_.
526. 7.70 pounds
527. 7.50 pounds
528. 8.34 pounds
529. 8.53 pounds
530. \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is defined as the average atomic mass for a naturally occurring element.
531. atomic weight
532. nuclear weight
533. molecular weight
534. none of the above
535. There are \_\_\_\_\_\_\_ atoms in a molecule of hydrogen.
536. 2
537. 4
538. 8
539. 16