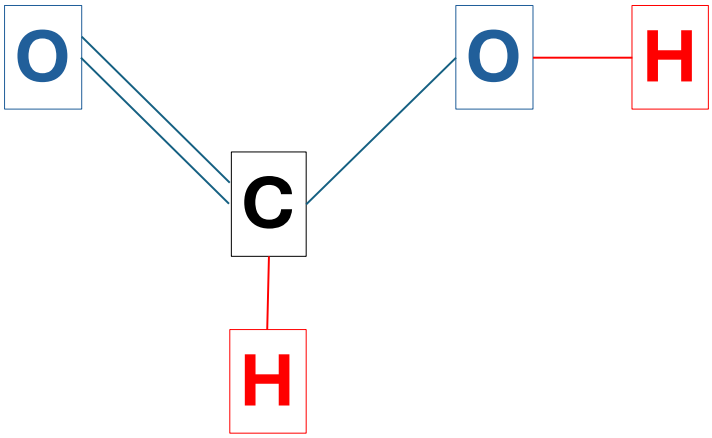
Chemical of the Week – Part 2

Hazard Profile	
Chemical Name and Pseudonyms	Formic Acid, Methanoic acid, Formylic acid, Aminic acid, Hydrogen Carboxylic acid
UN Number	1779
Chemical Formula	CH_2O_2
Hazards	Toxic, flammable liquid, polymerization
NFPA Hazard Class (H-F-R-Ⓞ)	3 – 2 – 1 –
PPE Considerations	CPC or SFPC with SCBA based on assignment
Fire Fighting Considerations	Water spray, CO_2, dry chemical, ATC AFFF. Water mist to cool containers.
Decontamination	Flushing water, consider neutralization for equipment
Detection and Monitoring	Colorimetric, spectroscopy, FTIR PID (IP=11.05 eV), electrochemical sensor
Chemical and Physical Properties	
Physical State	Colorless liquid with pungent odor
Vapor Pressure	35 mm/Hg
Boiling Point	224°F in 90% solution
Vapor Density	1.6
Specific Gravity	1.2 in 90% solution
Miscibility	Miscible
Flash Point	122°F open cup in 90% solution
LEL/UEL	18 / 67% in 90% solution
Autoignition Temp	1114°F
pH	1.8 – 3
Toxicity	
IDLH	30
LC50	15 gm/m^3
LD50	700 mg/kg (oral)
AEGL1/AEGL 2/AEGL (10 Min)	- / - / -
Emergency Response Planning Guide (ERPG) 1/2/3	3 / 25 / 250 ppm (odor threshold at/near ERPG1)
Protective Action Criteria (PAC) 1/2/3	3 / 25 / 250 ppm
PEL/REL/STEL	5 / 5 / - ppm
Radioactive (Yes/No)	No
Medical	
Toxicological Considerations	Toxic by inhalation, ingestion, and contact
Signs/Symptoms of Exposure	Respiratory/skin/eye irritation, CNS s/s, skin burns, respiratory s/s

Medical Treatment	Fresh air, water flush, treat symptomatically
Other Information	
Reacts exothmerically with all bases. Reacts with metals to form gaseous hydrogen and a metal salt. Reacts with cyanide salts to generate gaseous hydrogen cyanide. Reacts with diazo compounds, dithiocarbamates, isocyanates, mercaptans, nitrides, and sulfides to generate flammable or toxic gases. Reacts with sulfites, nitrites, thiosulfates (to give H2S and SO3), dithionites (SO2), to generate flammable and/or toxic gases and heat. Reacts with carbonates and bicarbonates to generate carbon dioxide and heat. Oxidizing agents and reducing agents may generate heat. May initiate polymerization reactions or catalyze other chemical reactions.	
Chemical Structure