

**Marathon Petroleum Company LP**

|  |   |                                       |                       |
|--|---|---------------------------------------|-----------------------|
| <b>Contaminant Thresholds and Conditions</b> | Document No.: <b>RSW-SAF-025-DT</b>                           | Approval Date: <b>06/29/2020</b>      | Page<br><b>1 of 4</b> |
|  | Revision No.: <b>5</b>  | Next Revision Date: <b>06/02/2025</b> |                       |
|  | Document Custodian: <b>Environmental, Safety and Security</b> |                                       |                       |

**1. PURPOSE**

To establish exposure limits for common refinery contaminants.

**2. SCOPE**

This procedure applies to all persons on Michigan Refining Division (MRD) property.

**3. PROCEDURE**

| Contaminant  | OEL  | STEL                                      | IDLH                  | Odor Threshold |
|--|--|---|-----------------------|----------------|
|  | ppm, unless otherwise noted<br><b>NOTE: Levels are based on an 8-hour workday, 40 hours work week.<br/>                     Adjustments must be made for longer work days.</b> |   |                       |                |
| Ammonia (NH <sub>3</sub> )                         | 25   | 35  | 300                   | 0.43-53        |
| Amines (DGA or MDEA)                               | 3  | 6 (skin)                                  | 30                    | 0.053          |
| Arsenic (As)                                       | 0.01 mg/m <sup>3</sup>   | 0.005 mg/m <sup>3</sup><br>(action level) | 5 mg/m <sup>3</sup>   | -----          |
| Asbestos   | 0.1 f/cc   | 1 f/cc                                    | -----                 | -----          |
| Benzene (C <sub>6</sub> H <sub>6</sub> )           | 0.5 Action Level<br>1.0 TWA  | 5   | 500                   | 1.5-8.5        |
| Carbon Monoxide (CO)                               | 25   | -----                                     | 1200                  | 100,000        |
| Ethanol  | 1000   | -----                                     | 3300                  | 0.136          |
| Gasoline   | 300  | 500                                       | -----                 | 0.3            |
| Hexavalent Chromium                                | 0.0025 mg/m <sup>3</sup> Action Level<br>0.0050 mg/m <sup>3</sup>  | -----                                     | 30 mg/m <sup>3</sup>  | -----          |
| Hydrocarbons (VOCs)                                | 100  | 150                                       | -----                 | -----          |
| Hydrogen Peroxide (H <sub>2</sub> O <sub>2</sub> ) | 1 ppm TLV  |   | 75                    |                |
| Hydrogen Sulfide (H <sub>2</sub> S)                | 10   | 15<br>20 (Ceiling)*<br>50 (max peak)      | 100                   | 0.001-0.13     |
| Lead   | 0.03 mg/m <sup>3</sup> Action Level<br>0.05 mg/m <sup>3</sup> PEL  | -----                                     | 100 mg/m <sup>3</sup> |                |
| Lower Explosive Limit (LEL) (Confined Space)       | Hot Work: 0 % LEL<br>Cold Work: 0-10 % LEL<br>No Work : >10 % LEL**  | -----                                     | -----                 | -----          |
| Lower Explosive Limit (LEL) (non-Confined Space)   | 0-10 % LEL**   | -----                                     | -----                 | -----          |
| Manganese (Mn)                                     | 0.2 mg/m <sup>3</sup>  | 5 mg/m <sup>3</sup><br>(Ceiling)          | 500 mg/m <sup>3</sup> |                |

|  |  |                             |          |               |
|--|--|-----------------------------|----------|---------------|
| Mercaptans   |  |                             |          |               |
| Butyl  | 0.5  | n/a                         | 500      | 0.00073-0.001 |
| Ethyl  | 0.5  | 10 (ceiling)                | 500      | 0.001-0.003   |
| Methyl   | 0.5  | 10 (ceiling)                | 150      | 0.0001-0.041  |
| Mercury  | 0.025 mg/m3                                  | -----                       | 10 mg/m3 | -----         |
| Methanol   | 200  | 250                         | 6000     | 141           |
| Nickel Carbonyl  | 0.001  | -----                       | 2        | 0.5-3.0       |
| Oxygen (O <sub>2</sub> )                                 | 19.5 – 23.0 %                                | -----                       | -----    | -----         |
| Particulates (NOS)                                       | 10 mg/m3 (inhalable)<br>3 mg/m3 (respirable) |                             |          |               |
| Perchloroethylene (C <sub>2</sub> Cl <sub>4</sub> )      | 25   | 200 (ceiling)<br>100 (STEL) | 500      | 47            |
| Petroleum Coke   | 10 mg/m3 (inhalable)<br>3 mg/m3 (respirable) | -----                       | -----    | -----         |
| Refractory Ceramic Fibers                                | 0.2 f/cc                                     | -----                       | -----    | -----         |
| Silica (Respirable Crystalline)                          | 0.025 mg/m3 (Action Level)<br>0.05 mg/m3 PEL | -----                       | -----    | -----         |
| Sodium Hydroxide (NaOH)                                  | 2 mg.m3 Ceiling                              |                             | 10 mg/m3 |               |
| Sulfur Dioxide (SO <sub>2</sub> )                        | 0.5  | 1                           | 100      | 0.5           |
| Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )          | 0.2 mg/m <sup>3</sup>                        | -----                       | 15 mg/m3 | 0.15          |
| Toluene (C <sub>6</sub> H <sub>5</sub> CH <sub>3</sub> ) | 20 ppm                                       | 300 Ceiling                 | 500      | 0.16          |

\*Ceiling concentration for H<sub>2</sub>S is based on a 10 minute average

\*\*Cold Work may be authorized at levels >10% (but not to exceed 20% LEL).

#### 4. DEFINITIONS

| <b>Key Terms</b> |   |
|------------------|---|
| Action Level     | Concentration of a contaminant measured as a TWA that is typically ½ the PEL  |
| OEL              | Occupational Exposure Limit, A company identified exposure limit for a substance derived from the MIOSHA Permissible Exposure Limit (PEL), American Conference of Governmental Hygienists (ACGIH) Threshold Limit Value (TLV), Workplace Exposure Limits (WELs), or other sources of exposure criteria developed for the purpose of protecting the health and safety of workers.      |
| PEL              | Permissible Exposure Limit measured as an 8-hour TWA  |
| TLV              | ACGIH Threshold Limit Value measured as an 8 hour TWA   |
| STEL             | (Short Term Exposure Limit) a 15-minute TWA exposure which should not be exceeded at any time during a workday even if the 8-hour TWA is within the 8-hour TWA limit. Exposures about the TLV-TWA up to the STEL should not be longer than 15 minutes and should not occur more than 4 times per day. There should be at least 60 minutes between successive exposures in this range. |
| TWA              | (Time Weighted Average), the time-weighted average concentration for a conventional 8-hour workday and a 40 hour workweek.  |
| Ceiling          | The concentration that should not be exceeded during any part of the working exposure   |
| IDLH             | Immediately Dangerous to Life and Health, set by NIOSH, an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.   |
| Odor Threshold   | Minimum concentration of contaminant in air that most people can recognize by smell   |

## 5. REFERENCES

[RSW-SAF-006-DT Safe Work Permit](#)

[RSW-SAF-010-DT Confined Space Entry](#)

[RSW-SAF-062-DT Hot Work Permit Procedure](#)

[RSW-SAF-057-DT Industrial Hygiene Program](#)

[RSW-SAF-070-DT Respiratory Protection](#)

## 6. ATTACHMENTS

None

## 7. REVISION HISTORY

| Revision number | Description of change   | Written by | Checked by                            | Effective date |
|-----------------|---|------------|---------------------------------------|----------------|
| 0               | Developed from SAF-010 Confined Space Entry Procedure Appendix B, SAF-006 Safe Work Permit Appendix A, SAF-062 Hot Work Permit Procedure Attachment A., updated odor thresholds & SiO <sub>2</sub> , added Hexavalent chromium, lead, mercury, methanol, refractory ceramic fibers, & NaOH. | J.Taggart  | L.Mazur / Steering Committee 11/19/10 | 11-19-10       |
| 2               | Added Petroleum Coke to the table with exposure limits  | J. Taggart | L. Mazur                              | 08/16/12       |
| 3               | Added hydrogen peroxide, particulates (NOS), and toluene. Information change for sulfur dioxide and sulfuric acid based on MPC exposure limits  | J. Taggart | J. Rabideau                           | 08/15/15       |
| 4               | Updated table for additional contaminants and fixed Doc # in header on page 1.  | A. Styes   | J. Rabideau                           | 11/15/18       |
| 5               | Scheduled Review, no  | A. Styes   | A. Morales                            | 06/29/20       |

|  |         |  |  |  |
|--|---------|--|--|--|
|  | updates |  |  |  |
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