

# CUSTOMS OFFICER'S QUICK TOOL FOR SCREENING ODS

## Ozone Depleting Substances ODS

| Name/Group                                  | Chemical name               | Formula   | ASHRAE #<br>for refrigerants<br>only | ASHRAE <sup>1</sup><br>safety<br>group | CAS <sup>2</sup> # | UN <sup>3</sup> # | HS code          |
|---|-----------------------------|---|--------------------------------------|--|--------------------|-------------------|------------------|
| <b>Annex A, Group I (CFCs)</b>              |                             |   |                                      |  |                    |                   | <b>--2903.40</b> |
| CFC-11                                      | Trichlorofluoromethane      | CFCl <sub>3</sub>                               | R-11                                 | A1                                     | 75-69-4            | 1017              | --2903.41        |
| CFC-12                                      | Dichlorodifluoromethane     | CF <sub>2</sub> Cl <sub>2</sub>                 | R-12                                 | A1                                     | 75-71-8            | 1028              | --2903.42        |
| CFC-113                                     | Trichlorotrifluoroethanes   | C <sub>2</sub> F <sub>3</sub> Cl <sub>3</sub>   | R-113                                | A1                                     | 76-13-1            |                   | --2903.43        |
| CFC-114                                     | Dichlorotetrafluoroethanes  | C <sub>2</sub> F <sub>4</sub> Cl <sub>2</sub>   | R-114                                | A1                                     | 76-14-2            | 1958              | --2903.44        |
| CFC-115                                     | Chloropentafluoroethane     | CClF <sub>2</sub> CF <sub>3</sub>               | R-115                                | A1                                     | 76-15-3            | 1020              | --2903.44        |
| <b>Annex A, Group II (Halons)</b>           |                             |   |                                      |  |                    |                   | <b>--2903.40</b> |
| Halon-1211                                  | Bromochlorodifluoromethane  | CF <sub>2</sub> BrCl                            | R-12B1                               |  | 353-59-3           | 1974              | --2903.46        |
| Halon-1301                                  | Bromotrifluoromethane       | CF <sub>3</sub> Br                              | R-13B1                               |  | 75-63-8            | 1009              | --2903.46        |
| Halon-2402                                  | Dibromotetrafluoroethane    | C <sub>2</sub> F <sub>4</sub> Br <sub>2</sub>   | R-114B2                              |  | 124-73-2           |                   | --2903.46        |
| <b>Annex B, Group I (Other CFCs)</b>        |                             |   |                                      |  |                    |                   | <b>--2903.45</b> |
| CFC-13                                      | Chlorotrifluoromethane      | CF <sub>3</sub> Cl                              | R-13                                 | A1                                     | 75-72-9            |                   | --2903.45        |
| CFC-111                                     | Pentachlorofluoroethane     | C <sub>2</sub> FCl <sub>5</sub>                 | R-111                                |  | 354-56-3           |                   | --2903.45        |
| CFC-112                                     | Tetrachlorodifluoroethane   | C <sub>2</sub> F <sub>2</sub> Cl <sub>4</sub>   | R-112                                |  | 76-12-0            |                   | --2903.45        |
| <b>Annex B, Group II</b>                    |                             |   |                                      |  |                    |                   | <b>--2903.10</b> |
| Tetrachlormethane or carbon tetrachloride   |                             | CCl <sub>4</sub>                                |                                      | B1                                     | 56-23-5            | 1864              | --2903.14        |
| <b>Annex B, Group III</b>                   |                             |   |                                      |  |                    |                   | <b>--2903.19</b> |
| 1,1,1-trichloroethane or methyl chloroform  |                             | C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub>   | R-140a                               |  | 71-55-6            | 2831              | --2903.19        |
| <b>Annex C, Group I (HCFCs)</b>             |                             |   |                                      |  |                    |                   | <b>--2903.49</b> |
| HCFC-22                                     | Chlorodifluoromethane       | CHF <sub>2</sub> Cl                             | R-22                                 |  | 75-45-6            | 1018              | --2903.49        |
| HCFC-123                                    | Dichlorotrifluoroethanes    | C <sub>2</sub> HF <sub>3</sub> Cl <sub>2</sub>  | R-123                                |  | 306-83-2           |                   | --2903.49        |
| HCFC-124                                    | Chlorotetrafluoroethanes    | C <sub>2</sub> HF <sub>4</sub> Cl               | R-124                                |  | 2837-89-0          |                   | --2903.49        |
| HCFC-141                                    | Dichlorofluoroethanes       | C <sub>2</sub> H <sub>3</sub> FCl <sub>2</sub>  |                                      |  | 1717-00-6          |                   | --2903.49        |
| HCFC-141b                                   | 1,1-dichloro-1-fluoroethane | CH <sub>3</sub> CFCl <sub>2</sub>               | R-141b                               |  | 1717-00-6          |                   | --2903.49        |
| HCFC-142                                    | Chlorodifluoroethanes       | C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> Cl |                                      |  | 75-68-3            |                   | --2903.49        |
| HCFC-142b                                   | 1-chloro-1,1-difluoroethane | CH <sub>3</sub> CF <sub>2</sub> Cl              | R-142b                               |  | 75-68-3            |                   | --2903.49        |
| <b>Annex C, Group II (HBFCs)</b>            |                             |   |                                      |  |                    |                   | <b>--2903.49</b> |
| HBFC-22B1                                   | Bromodifluoromethane        | CHF <sub>2</sub> Br                             |                                      |  |                    |                   | --2903.49        |
| <b>Annex C, Group III</b>                   |                             |   |                                      |  |                    |                   | <b>--2903.49</b> |
| Bromochloromethane                          |                             | CH <sub>2</sub> BrCl                            |                                      |  |                    |                   | --2903.49        |
| <b>Annex E, Group I</b>                     |                             |   |                                      |  |                    |                   | <b>--2903.30</b> |
| Methyl bromide (or Bromomethane)            |                             | CH <sub>3</sub> Br                              |                                      |  | 74-83-9            | 1062              | --2903.30        |
| <b>ODS containing blends (Refrigerants)</b> |                             |   |                                      |  |                    |                   |                  |
| R-500                                       | CFC-12 / HFC-152a           |   | R-500                                |  | **                 |                   | --3824.71        |
| R-502                                       | HCFC-22 / CFC-115           |   | R-502                                |  | **                 | 1973              | --3824.71        |

## Non-Ozone Depleting Substances

| Name/Group                       | Chemical name             | Formula                           | ASHRAE #<br>for refrigerants<br>only | ASHRAE <sup>1</sup><br>safety<br>group | CAS <sup>2</sup> # | UN <sup>3</sup> # | HS code          |
|----------------------------------|---------------------------|-----------------------------------|--------------------------------------|--|--------------------|-------------------|------------------|
| <b>Hydrofluorocarbons (HFCs)</b> |                           |                                   |                                      |  |                    |                   | <b>--2903.30</b> |
| HFC-134a                         | 1,1,1,2-Tetrafluoroethane | CF <sub>3</sub> CH <sub>2</sub> F | R-134a                               | A1                                     | 811-97-2           | 3159              | --2903.30        |
| HFC-152a                         | 1,1-Difluoroethane        | CHF <sub>2</sub> CH <sub>3</sub>  | R-152a                               | A2                                     | 75-37-6            |                   | --2903.30        |
| HFC-125                          | Pentafluoroethane         | CF <sub>3</sub> CHF <sub>2</sub>  | R-125                                | A1                                     | 354-33-6           |                   | --2903.30        |
| HFC-143a                         | 1,1,1-trifluoroethane     | CF <sub>3</sub> CH <sub>3</sub>   | R-143a                               | A2                                     | 420-46-2           |                   | --2903.30        |
| HFC-32                           | Difluoromethane           | CH <sub>2</sub> F <sub>2</sub>    | R-32                                 | A2                                     | 75-10-5            |                   | --2903.30        |
| HFC-23                           | Trifluoromethane          | CHF <sub>3</sub>                  | R-23                                 | A1                                     | 75-46-7            |                   | --2903.30        |

| Name/Group                              | Chemical name  | Formula                        | ASHRAE #<br>for refrigerants<br>only | ASHRAE <sup>1</sup><br>safety<br>group | CAS <sup>2</sup> # | UN <sup>3</sup> # | HS code          |
|---|----------------|--------------------------------|--------------------------------------|--|--------------------|-------------------|------------------|
| <b>Hydrofluorocarbons blends (HFCs)</b> |                |                                |                                      |  |                    |                   | <b>--2903.30</b> |
| R-404A                                  | R143a/125/134a |                                | R-404A                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-507A                                  | R143a/125      |                                | R-507A                               | A1                                     | **                 |                   | --3824.90        |
| R-407A                                  | R32/125/134a   |                                | R-407A                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-407B                                  | R32/125/134a   |                                | R-407B                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-407C                                  | R32/125/134a   |                                | R-407C                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-410A                                  | R32/125        |                                | R-410A                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-508A                                  | R23/116        |                                | R-508A                               | A1/A1                                  | **                 |                   | --3824.90        |
| R-508B                                  | R23/116        |                                | R-508B                               | A1/A1                                  | **                 |                   | --3824.90        |
| <b>Halogen-free Refrigerants</b>        |                |                                |                                      |  |                    |                   |                  |
| R-717                                   | Ammonia        | NH <sub>3</sub>                | R-717                                | B2                                     | 7664-41-7          | 1005              | --2814.10        |
| R-600a                                  | Iso-Butane     | C <sub>4</sub> H <sub>10</sub> | R-600a                               | A3                                     | 75-28-5            | 1969              | --2901.10        |
| R-290                                   | Propane        | C <sub>3</sub> H <sub>8</sub>  | R-290                                | A3                                     | 74-98-6            | 1978              | --2901.10        |

1- ASHRAE Safety Groups (ASHRAE: American Society for Heating Refrigeration & Air-conditioning)

|   |           |
|---|-----------|
| <b>A1</b> Lower Toxicity & No Flammability      | <b>A1</b> |
| <b>A2</b> Lower Toxicity & Lower Flammability   | <b>A2</b> |
| <b>A3</b> Lower Toxicity & Higher Flammability  | <b>A3</b> |
| <b>B1</b> Higher Toxicity & No Flammability     | <b>B1</b> |
| <b>B2</b> Higher Toxicity & Lower Flammability  | <b>B2</b> |
| <b>B3</b> Higher Toxicity & Higher Flammability | <b>B3</b> |

2- CAS #: Chemical Abstract Service Number

3- UN #: United Nations Number for some Chemicals

\*\* CAS # for blend is combined of the CAS # of its components

(Example: R-500 CAS # is: 75-71-8 / 75-37-6 which CAS # for both CFC-12 & HFC-152a)

#### Most popular refrigerants trade names

ARCTON - ASAHIFRON - ASAHIKLIN - FORANE - FREON - GENETRON - ISCEON - SOLKANE - SUVA - FLORON

#### List of main producing countries for ODS



**Toxic substances**



**Flammable substances**



**Explosive substances**



**Oxidizing substances**



**Corrosive substances**



**Irritating substances**



**Environmentally dangerous substances**

| Group  | Producing Countries   |
|--|---|
| <b>Chlorofluorocarbons (CFCs)</b>                      | <b>CHINA, INDIA, NETHERLANDS, BRAZIL, REP. OF KOREA, ITALY, SPAIN, MEXICO &amp; VENEZUELA</b> |
| <b>Halons</b>  | <b>CHINA, &amp; REP. OF KOREA</b>   |
| <b>Carbon tetrachloride (CCl<sub>4</sub>)</b>          | <b>INDIA, BRAZIL, UKRAINE &amp; ROMANIA</b>   |
| <b>Methylchloroform (CH<sub>3</sub>CL<sub>3</sub>)</b> | <b>JAPAN, USA, FRANCE &amp; CHINA</b>   |
| <b>Hydrochlorofluorocarbon (HCFCs)</b>                 | <b>USA, FRANCE, JAPAN, CHINA, NETHERLANDS, UK, SPAIN, INDIA &amp; RUSSIAN FEDERATION</b>      |
| <b>Methyl Bromide</b>                                  | <b>USA, ISRAEL, JAPAN, FRANCE, CHINA</b>  |

#### Classification of ODS containing products with accordance to HS

| Product                   | HS code/codes                      |
|---------------------------|------------------------------------|
| A/C Systems               | 8415.10, 8415.20, 8415.81, 8415.83 |
| AC components             | 8415.9                             |
| Refrigerators & Freezers  | 84.18, 84.19, 85.09                |
| Compressors               | 8414.2                             |
| Vehicles                  | CHAPTER 87                         |
| Fire Extinguishers        | 8424.1                             |
| Ins. boards & pipe covers | 3917, 3920, 3921, 3925, 3926       |
| PRE-POLYMERS              | 3901 – 3911                        |



United Nations Environment Programme

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