



# H<sub>2</sub>Orange<sub>2</sub> Concentrate 117 White Paper

## **Reduced Toxicity Cleaning System is Granted EPA Registration as a Sanitizer/Virucide (EPA Registration No. 069268-2)**

H<sub>2</sub>Orange<sub>2</sub> Concentrate 117 is a multi-purpose cleaning system containing biodegradable surfactants, orange oil and hydrogen peroxide. One concentrated liquid is used at two different water dilutions to provide highly effective cleaning across the entire range of janitorial cleaning; i.e. glass, floors, wipe down cleaning, general degreasing, bathroom and shower room cleaning, tile & grout cleaning, restoration cleaning, carpet spotting and extraction, stainless steel cleaning, odor destruction, mold & mildew cleaning.

AOAC non-food sanitizer tests have demonstrated kill efficacy on: Staphylococcus aureus, Salmonella choleraesuis, Klebsiella pneumoniae, Pseudomonas aeruginosa, Streptococcus faecalis, and Escherichia coli. Viral testing demonstrates kill efficacy on Herpes Simplex II\*, Influenza A2/Japan, HIV-1 and HBV\*. Results of these tests are summarized in table #2. H<sub>2</sub>Orange<sub>2</sub> Concentrate 117 provides a practical, reduced toxicity alternative to conventional janitorial cleaning systems. It is a viable tool in the effort to provide buildings with a clean and safe, working or living environment.

\*Herpes Simplex II and HBV claim not applicable in California.

## TABLE # 1

### H<sub>2</sub>Orange<sub>2</sub> Concentrate 117 Environmental Impact Chart

	Concentrate 117	Window Cleaner	General Floor Cleaner	Deodorizer	Bathroom/ Tile Cleaner	General Degreaser	Sanitizer/ Virucide
Dilution Ratio from Concentrate (Parts Water to Parts Chemical)		128:1	128:1	64:1	13:1	13:1	13:1
Carcinogens (>0.1%)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Ozone Depleting Substances (Montreal Protocol)	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Phosphates	0	0	0	0	0	0	0
Consumer VOC's **	2.03%	0.016%	0.016%	0.032%	0.158%	0.158%	0.158%
Hazardous Waste	NO	NO	NO	NO	NO	NO	NO
Skin Irritation	NO	NO	NO	NO	NO	NO	NO
Eye Irritation	SLIGHT	NO	NO	NO	NO	NO	NO
Oral Toxicity (LD <sub>50</sub> ) of active ingredient	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity	>5000 mg/kg low toxicity
pH	4.4 (+/- 0.5)	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL	NEUTRAL
Flammability	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Biodegradable	YES	YES	YES	YES	YES	YES	YES
Fragrance	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Aerosol	NO	NO	NO	NO	NO	NO	NO
Packaging Source Reduction***	N/A	99.2%	99.2%	98.4%	92.2%	92.2%	92.2%
Refillable Containers	NO	YES	YES	YES	YES	YES	YES
Alkylphenyl ethoxylates (APE's)	NO	NO	NO	NO	NO	NO	NO
SARA 313 Materials	NO	NO	NO	NO	NO	NO	NO
Glycol Ethers	NO	NO	NO	NO	NO	NO	NO
Ammonia	NO	NO	NO	NO	NO	NO	NO
Chlorine Bleach	NO	NO	NO	NO	NO	NO	NO
Amines	NO	NO	NO	NO	NO	NO	NO

\*\* Consumer VOC's defined in EPA proposal 61 FR 14531 (April 2, 1996); Level on RTU's <7% of California VOC limits.

\*\*\* Reduction over RTU product in 1 gal plastic containers (150g/gal).

## TABLE # 2

### H<sub>2</sub>Orange<sub>2</sub> Concentrate 117 Sanitizer/Virucidal Performance

#### Sanitizer

The test run was for efficacy as a sanitizer on inanimate, non-food contact surfaces (EPA Guidelines DIS/TSS-10), which references the Official Methods of Analysis of the A.O.A.C., 12<sup>th</sup> edition. Results are based upon bacterial counts on tests of three different batches. An organic soil load of 5% blood serum was utilized.

<u>Bacteria</u>	<u>% Kill in 5 Minutes</u>
Staphylococcus aureus	99.9
Streptococcus faecalis	99.9
Salmonella choleraesius	99.9
Klebsiella pneumoniae	99.9
Escherichia coli	99.9
Pseudomonas aeruginosa	99.9

#### Virucide

This test was designed to conform with EPA Guidelines DIS/TSS-7 and ASTM test method E 1053-91. An organic soil load of 5% blood serum was utilized. A cytotoxicity control was run.

<u>Virus</u>	<u>Reduction of Virus Titer (logs)</u>
Herpes Simplex II*	≥ 3.66
Influenza A <sub>2</sub>	≥ 3.00

#### HIV

This test was conducted to conform with EPA Pesticide Assessment Guidelines, Subdivision G: Product Performance, Section 91-2(f) and Section 91-30(d),(c). An organic soil load of 5% fetal bovine serum was utilized.

<u>Virus</u>	<u>Reduction of Virus Titer (logs)</u>
HIV-1	≥ 4.2

#### HBV\*

This test was conducted to conform with EPA GLP regulations as set forth in 40 CFR Part 160. The product was diluted to 25:1 in filter sterilized de-ionized tap water. An organic soil load of 100% duck Hepatitis B serum was utilized. EnviroX Concentrate 118 demonstrated complete inactivation of the duck Hepatitis B virus following a five minute exposure time.

<u>Virus</u>	<u>Reduction of Virus Titer (logs)</u>
HBV*	≥ 3.43

\*Herpes Simplex II and HBV claim not applicable in California.

## TABLE # 3

### Consumer VOC Content\*

PRODUCT	VOC %
H <sub>2</sub> Orange <sub>2</sub> Concentrate 117 -Light Duty (Green Dilution)	0.016%
H <sub>2</sub> Orange <sub>2</sub> Concentrate 117 -Heavy Duty (Red Dilution)	0.158%

\* Defined 61 FR 14531

## TABLE # 4

### Sanitizer/Virucide Data Summary for H<sub>2</sub>Orange<sub>2</sub> Concentrate 117

	Light Duty	Heavy Duty
Water dilution ratio	128:1	13:1
HIV	√	√
HBV*	N/A	√
Sanitizer	N/A	√
Virucide	N/A	√

\*Herpes Simplex II and HBV claim not applicable in California.