

3DL – VOC Emission Test



CLEAN AIR

Product Tested

- **Product:** Quietude SM6 (30)W / R084SM6
- **Manufacturer:** RIKEN TECHNOS CORP.
- **Test Laboratory:** Berkeley Analytical
- **Test Method:** ASTM D5116 Small Chamber VOC Emissions Test

Overall Test Results

Total VOCs (TVOC) / Formaldehyde and Acetaldehyde

- Both **formaldehyde** and **acetaldehyde** were below quantifiable levels in the chamber background and were not reported as emitted contaminants.

Chemical	CAS	Chamber Concentration (µg/m ³)	CREL (µg/m ³)	CDPH v1.2 (µg/m ³)
Formaldehyde	50-00-0	LQ	9	9
Acetaldehyde	75-07-0	LQ	140	70
TVOCs		LQ		

Individual VOCs Detected

- Only two VOCs were detected above reporting limits after testing:

Chemical	CAS	Chamber Concentration (µg/m ³)	Emission Factor (µg/m ² ·h)	CREL (µg/m ³)	CDPH v1.2 (µg/m ³)	Prop 65 list	CARB TAC
n-Butyl acetate	123-86-4	17.1	36.6	-	-	-	
Toluene	108-88-3	4.5	9.6	300	150	Yes	T-IIa

Reference: CDPH Standard Method v1.2 (2017) Table 4-1: Target CREL VOCs and Maximum Allowable Concentrations.

Parameter/Value	Definition
CARB TAC	Toxic Air Contaminant (TAC) on California Air Resources Board list, with toxic category indicated
CAS No.	Chemical Abstract Service registry number providing unique chemical ID
Chamber Conc.	Measured chamber VOC concentration at time point minus any analytical blank or background concentration for empty chamber measured prior to test. Lower limit of quantitation (LQ) or reporting limit for individual VOCs is 2 µg/m ³ unless otherwise noted
CREL	Chronic non-cancer Reference Exposure Level established by Cal/EPA OEHHA (http://www.OEHHA.ca.gov/air/allrels.html)
Emission Factor	Mass of compound emitted per unit area per hour (calculation shown below). Reporting limits for emission factors are established by LQ or reporting limit for chamber concentration and specimen area tested
Formaldehyde & acetaldehyde	Volatile aldehydes quantified by HPLC following ASTM Standard Method D5197. LQs for formaldehyde and acetaldehyde are 1.4 µg/m ³ and 1.3 µg/m ³ , respectively
Individual VOC (iVOC)	Quantified by thermal desorption GC/MS following EPA Method TO-17. Compounds quantified using multi-point calibrations prepared with pure chemicals unless otherwise indicated.
LQ	Indicates calculated value is below its lower limit of quantitation
Prop 65 list	"Yes" indicates the compound is a chemical known to cause cancer or reproductive toxicity according to California Safe Drinking Water Toxic Enforcement Act of 1986 (Proposition 65)
TVOC	Total Volatile Organic Compounds eluting over retention time range bounded by n-pentane and n-heptadecane and quantified by GC/MS TIC method using toluene as calibration reference. LQ for TVOC is 20 µg/m ³
"na"	Not applicable
"<"	Less than value established by LQ



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3DL – VOC Emission Test



CLEAN AIR

Product Tested

- **Product:** Classic Maple DT (30)W / R290
- **Manufacturer:** RIKEN TECHNOS CORP.
- **Test Laboratory:** Berkeley Analytical
- **Test Method:** ASTM D5116 Small Chamber VOC Emissions Test

Overall Test Results

Total VOCs (TVOC) / Formaldehyde and Acetaldehyde

- Both **formaldehyde** and **acetaldehyde** were below quantifiable levels in the chamber background and were not reported as emitted contaminants.

Chemical	CAS	Chamber Concentration (µg/m ³)	CREL (µg/m ³)	CDPH v1.2 (µg/m ³)
Formaldehyde	50-00-0	LQ	9	9
Acetaldehyde	75-07-0	LQ	140	70
TVOCs		LQ		

Individual VOCs Detected

- Only four VOCs were detected above reporting limits after testing:

Chemical	CAS	Chamber Concentration (µg/m ³)	Emission Factor (µg/m ² ·h)	CREL (µg/m ³)	CDPH v1.2 (µg/m ³)	Prop 65 list	CARB TAC
Ethyl acetate	141-78-6	11.7	25.1	-	-	-	-
2-Butanone (MEK)	78-93-3	7.3	15.7	-	-	-	T-IIa
Methyl Isobutyl Ketone (MIBK)	108-10-1	4.0	8.7	-	-	Yes	T-IVa
2-Propanol (Isopropyl Alcohol)	67-63-0	2.2	4.7	7000	3500	-	T-IIb

Reference: CDPH Standard Method v1.2 (2017) Table 4-1: Target CREL VOCs and Maximum Allowable Concentrations.

Parameter/Value	Definition
CARB TAC	Toxic Air Contaminant (TAC) on California Air Resources Board list, with toxic category indicated
CAS No.	Chemical Abstract Service registry number providing unique chemical ID
Chamber Conc.	Measured chamber VOC concentration at time point minus any analytical blank or background concentration for empty chamber measured prior to test. Lower limit of quantitation (LQ) or reporting limit for individual VOCs is 2 µg/m ³ unless otherwise noted
CREL	Chronic non-cancer Reference Exposure Level established by Cal/EPA OEHHA (http://www.OEHHA.ca.gov/air/allrels.html)
Emission Factor	Mass of compound emitted per unit area per hour (calculation shown below). Reporting limits for emission factors are established by LQ or reporting limit for chamber concentration and specimen area tested
Formaldehyde & acetaldehyde	Volatile aldehydes quantified by HPLC following ASTM Standard Method D5197. LQs for formaldehyde and acetaldehyde are 1.4 µg/m ³ and 1.3 µg/m ³ , respectively
Individual VOC (iVOC)	Quantified by thermal desorption GC/MS following EPA Method TO-17. Compounds quantified using multi-point calibrations prepared with pure chemicals unless otherwise indicated.
LQ	Indicates calculated value is below its lower limit of quantitation
Prop 65 list	"Yes" indicates the compound is a chemical known to cause cancer or reproductive toxicity according to California Safe Drinking Water Toxic Enforcement Act of 1986 (Proposition 65)
TVOC	Total Volatile Organic Compounds eluting over retention time range bounded by n-pentane and n-heptadecane and quantified by GC/MS TIC method using toluene as calibration reference. LQ for TVOC is 20 µg/m ³
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