SHIMADZU
Excellence in Science

C184-E059

One Module, Five Modes. Meet The Next-Gen Injection

For Nexis™ GC-2060



Multi-Mode Injection Unit (MMI): Ultimate Flexibility, Minimal Complexity

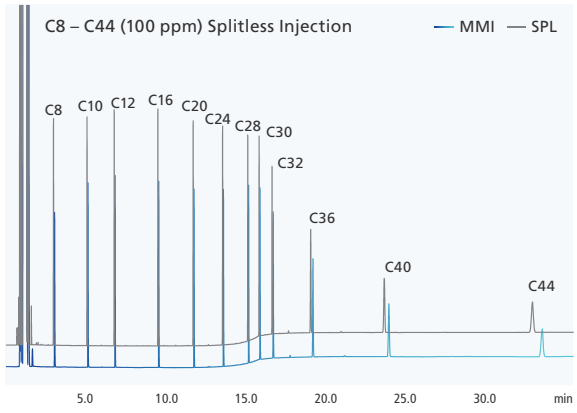
The MMI is a next-generation injection unit that packs 5 distinct injection techniques into a single module. Transition seamlessly between modes via software to match your sample type, concentration, and analytical goals—Consolidating workflows that previously required multiple hardware units. Shimadzu's MMI can replicate stand-alone SPL injection conditions, enabling users to preserve existing methods while maximizing instrument uptime, accelerating throughput, and lowering overall operational costs.

	Injection Modes	Key Features
	Split / Splitless Injection **SPL**	• Instantly vaporizes samples in a heated chamber and transfers them to the column under split or splitless conditions. • Proprietary insulation design ensures thermal stability and data compatibility with stand-alone SPL injection units. Easily transfers existing methods. • Reduce injection unit maintenance (liner replacement, column cut) downtime from 40 min to 5 min by faster cooling capability.
	Programmed Temperature Vaporization Injection **PTV**	• Vaporizes samples in a cooled chamber via programmed heating and transfers them to the column under split or splitless conditions. • Reduces syringe-needle discrimination and decomposition of thermally labile compounds.
	Large Volume Injection **LVI**	• Concentrates analytes by selectively venting solvent, then vaporizes and transfers them to the column. • Eliminates time-consuming offline concentration steps and reduces solvent consumption. • Significantly boosts sensitivity for trace-level detection.
	Direct Injection (Simple OCI) **Direct**	• Vaporizes samples in a cooled chamber via programmed heating and transfers them directly to the column using a special column-fit liner. • Minimizes sample discrimination and maximizes recovery, offering OCI-like performance with easier operation.
	Thermal Desorption/ Extraction **Manual TD**	• Desorbs volatiles from samples or adsorbents via rapid heating and transfers them to the column. • Fast heating (up to 1200 °C/min) achieves peak shapes and accuracy comparable to dedicated TD autosamplers. • Enables quick spot VOC, material-emission, and odor screening with minimal sample preparation.
	**Universal**	• Provides a software user-interface for easy method transfer from Shimadzu and other vendor's GC systems. • Allows flexible, advanced parameter settings not available in other modes.

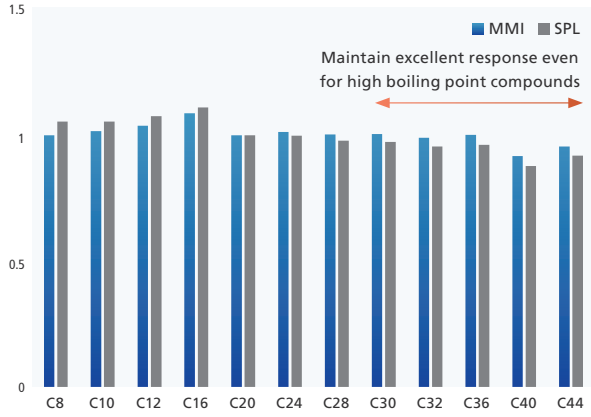
High Performance Comparable To A Standalone SPL System

Testing with a standard alkane mix (C8–C44) confirms excellent comparability between standalone SPL and MMI. Overlaid chromatograms demonstrate that the MMI maintains equivalent sensitivity even for **high boiling point compounds (C30+), showcasing seamless method transfer and reliable results across a wide range of analytes**.

Alkane Analysis – MMI versus SPL



Alkane Sensitivity – MMI versus SPL



Seamless Method Transfer & Compliance With EN 14103 FAME Quantitation

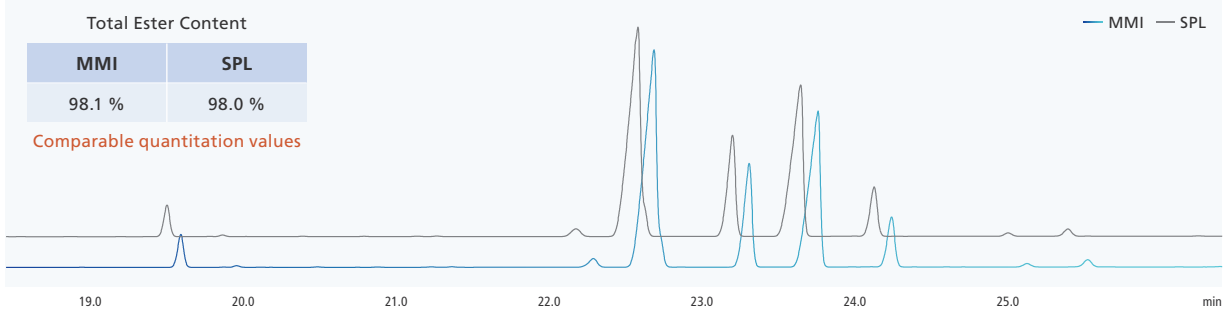
EN 14103 testing demonstrates that the MMI delivers quantitative results fully equivalent to a standalone SPL injector, ensuring high method compatibility. Labs can migrate from SPL to MMI with total confidence, retaining regulatory-grade quantitation while reducing the injection unit maintenance downtime and unlocking the enhanced operational flexibility of a multi-mode injection unit.

Biodiesel Analysis – MMI versus SPL

Total Ester Content

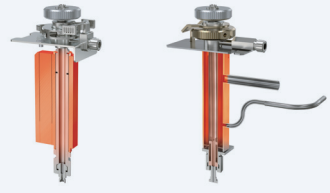
MMI	SPL
98.1 %	98.0 %

Comparable quantitation values



Engineered For Excellence: What Drives MMI's Uncompromised Performance?

Shimadzu's proprietary insulation ensures uniform internal temperature distribution within the MMI, hence preserving SPL-equivalent vaporization behavior. This design delivers superior thermal stability and rapid heating/cooling — boosting lab efficiency while maintaining compatibility with existing methods.



SPL MMI

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