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Institute

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2022–23 highlights

This report reviews the National Measurement Institute's (NMI) measurement compliance activities. During the 2022–23 financial year NMI:

- completed 4,410 trader audits:
 - 92.3% of all businesses inspected were found to be complying with the law after follow-up audits were undertaken. This is up from 66.7% of 3,183 businesses found to be compliant after an initial audit
 - 1,342 incognito 'trial purchases' – 65.4% were compliant
 - 1,364 businesses were audited as part of the Tare It concentrated national audit programs. This included:
 - » 435 fruit and vegetable traders with the compliance rate improving by 21.6% from initial to follow-up audit
 - » 520 meat, fish and poultry traders with the compliance rate improving by 20.3% from initial to follow-up audit
 - » 409 delicatessens and smallgoods traders with the compliance rate improving by 25% from initial to follow-up audit
- visited 1,318 traders selling tobacco products to check compliance with Tobacco Plain Packaging legislation
- obtained 712 fuel samples from service stations to assess against Fuel Quality Standards legislation – 98.3% or 700 were compliant
- audited 935 recently verified measuring instruments and conducted 13 quality management system audits to confirm competency of servicing licensees and verifiers

- participated in 11 International Organization of Legal Metrology (OIML) technical committees and 45 active projects
- calibrated over 8,500 reference standards in 1 of our 3 measurement standards laboratories
- provided pattern approval for more than 100 new measuring instruments for the Australian marketplace
- trained, assessed, and appointed 7 new trade measurement inspectors across New South Wales, Queensland, South Australia and Victoria. NMI also recruited an additional 10 new assistant trade measurement officers who will undertake the training program throughout 2023–24.

The NMI also highlights the following key outcome and activity:

- On 9 May 2023, the government announced funding to modernise Australia's measurement laws, committing \$12.7 million over 4 years as part of its 2023–24 Budget.
- The Australian National Audit Office (ANAO) completed an audit of our trade measurement function. The audit examined whether compliance with trade measurement in Australia is being effectively administered. The ANAO made 6 recommendations in its final report. NMI has begun implementing improvements in line with the recommendations.



What is legal metrology?

Legal metrology is the application of legal requirements to measurements and measuring instruments. Legal metrology is typically invisible, but underpins confidence in measurements and ensures measuring instruments are accurate, so is relevant to all Australians. For example, fuel purchases are determined by volume, and we rely upon the petrol bowser (a measuring instrument) delivering the amount of fuel we have paid for. This is legal metrology in practice.

The OIML develops global standards for use in national measurement legislation. Australia is a member state of OIML via ratification of the [OIML Convention](#), which ensures Australian interests are represented (see page 8) and Australia remains consistent with global legal metrology frameworks.



What is trade measurement?

Trade measurement laws apply to all retail and wholesale transactions where measurement determines price.

You must comply with Australia's trade measurement laws if you:

- buy or sell goods or services by measurement (for example, selling meat, buying gold or transporting freight by weight)
- manufacture, pack, import or sell pre-packaged goods
- supply or maintain measuring instruments used for trade.

Consistency and certainty in measurement supports fair and open competition. It makes all businesses, regardless of their size or financial strength, follow the same rules.

Studies in Australia, the USA and Canada have estimated the total value of trade transactions involving measurement (including packaged goods and utility metering) accounts for at least 50% of gross national income¹. Retail transactions account for around a quarter of this amount, and business transactions account for the remaining three quarters. Based on these estimates, the total value of trade transactions involving measurement in Australia is over \$1 trillion a year.

1 Birch, J (2003) 'Benefit of Legal Metrology for the Economy and Society', International Committee of Legal Metrology.

Regulation of trade measurement

The NMI is a division within the Department of Industry, Science and Resources (DISR). As the national authority on measurement, NMI plays a fundamental role underpinning the Australian economy by:

- maintaining and regulating Australia's measurement system
- developing and maintaining national measurement standards
- delivering world-class measurement products and client services
- ensuring that Australian consumers and industry can rely on trusted measurements for fair trade in goods and services.

Trade measurement inspectors ensure traders comply with the law and adopt correct measurement trading practices by checking that:

- measuring instruments (for example, weighing instruments, fuel dispensers and weighbridges) are accurate
- pre-packaged goods contain the correct amount of product
- trader practices don't disadvantage consumers (for example allowing for the weight of packaging when using a measuring instrument to sell products).

Our trade measurement inspectors provide advice and guidance to businesses on better measurement practice and enforce legislative requirements.

Measuring instruments

The National Measurement Act 1960 regulates measuring instruments used for trade purposes. This framework is consistent with international best practice.

Pattern approval

Measuring instruments must be manufactured according to an approved pattern (design). The pattern approval process determines whether a measuring instrument is suitable for its intended use. It also ensures they will operate within allowable limits of error over a range of environmental and usage conditions.

More than 10,000 current measuring instrument designs have been approved for trade use. This continues to grow by an average of 110 measuring instruments a year and 103 in 2022–23.

Instrument verification

The pattern-approved instrument must be tested by a licensed third-party organisation (service licensee). NMI licences more than 300 external third party organisations who employ more than 1,200 verifiers. These verifiers verify between 85,000 and 110,000 measuring instruments per year.



During 2022–23 our measurement standard laboratories calibrated more than 8,500 reference standards of measurement. Reference standards of measurement are used by trade measurement inspectors and verifiers to check and verify measuring instruments. Reference standards of measurement are generally calibrated or certified at our 3 NATA-accredited laboratories in Brisbane, Adelaide and Perth.

Evolving to meet demand in a changing industry

Rapid technological development and innovation will give businesses and consumers world-leading measurement solutions and applications. International standards are developed to keep pace with technology and support these new and innovative measurement technologies. The Australian Government is a signatory to 2 intergovernmental measurement treaties:

- The Metre Convention, for measurement science
- The OIML Convention, for measurement regulation.

NMI ensures international recognition and acceptance of Australia's measurement system by acting as the interface between the Australian and international measurement systems. Our experts participate in 11 OIML technical committees and 45 active projects to:

- establish model draft laws and regulations for measuring instruments and their use
- promote closer relations between the departments responsible for measurement regulation in each of the OIML member states
- play an important leadership role in establishing a sustainable international system for measurement regulation which supports Australian businesses and manufacturers
- develop and guide the strategic direction of the OIML Certification System and related programs to ensure Australian businesses have access to global supply chains for trusted measuring instruments
- actively build and nurture relationships with critical trading partners and marshal global expertise during times of technological change

- reduce barriers to trade and building opportunities for Australian businesses to invest and compete in global markets.

Modernising Australia's measurement legislation

Following a comprehensive review, NMI are in the process of reforming Australia's measurement legislation.

The reforms are expected to start in 2026. They will streamline, modernise and simplify the legislation to be more principles-based and flexible. The legislation will continue to ensure Australia has a strong, efficient and effective measurement system that:

- facilitates trade
- supports ongoing economic prosperity
- builds business and consumer confidence
- meets safety and security objectives.

In the 2023–24 Budget, the government announced \$12.7 million over 4 years to implement these reforms.

The new legislative framework will reduce regulatory burden on businesses and better align Australia's measurement standards with international best practice. The [final Regulation Impact Statement](#) can be viewed on the Office of Impact Analysis website.

Developing measurement capability for industry

NMI provides training courses in biological, chemical, physical and legal measurement. These courses help build national and international capability and expertise in measurement to meet industry demands. In 2022–23 NMI:

- issued 160 registered training organisation certificates
- delivered 24 training courses and 23 consultancies
- enrolled over 140 people in e-learning modules.

Case study: Training for advanced manufacturing

Geometric dimensioning and tolerancing (GD&T) is essential to specify and communicate required dimensions and tolerances of physical components in advanced manufacturing. NMI have delivered high quality GD&T training for 12 years to national and Asia-Pacific regional stakeholders. NMI is seen as the only expert body in this capacity, providing training to engineers with an interest or need to understand GD&T. GD&T training includes interpretation and application of GD&T that help industry to:

- communicate design intent more clearly to all levels of production and inspection
- increase part tolerances
- promoting sustainability by reducing scrap
- enable global supply chains
- reduce drawing errors and increase productivity
- improve inspection accuracy and repeatability
- save money at the design stage.

Trade measurement inspectors

To help businesses comply with their legal obligations, NMI's trade measurement inspectors:

- test measuring instruments, inspect packaged goods and review business practices
- give advice on meeting compliance obligations
- take enforcement action when necessary.

Trade measurement inspectors typically wear branded clothing and show an ID card to the business owner/operator before starting an audit. Trade measurement inspectors also make incognito 'trial purchases'. Trial purchases are used to assess whether the business is correctly operating scales and allowing for the weight of packaging during over-the-counter transactions.

Throughout the 2022–23 financial year, NMI trained, assessed and appointed 7 new trade measurement inspectors. Following the appointment of these inspectors, an 10 additional assistant trade measurement officers were recruited across Australia. They will complete their training program and future appointment as trade measurement inspectors in the 2023–24 financial year.

A risk-based approach

NMI takes a risk-based approach when targeting compliance activities and determining the appropriate and proportionate regulatory response where non-compliance is found.

We measure risk in terms of the harm and likelihood of regulatory non-compliance. Some of the factors used to determine harm include:

- impact on confidence in the measurement system
- extent of financial detriment to consumers or industry
- impact on maintaining a level playing field for business competition
- ability of consumers to make informed purchasing decisions.

NMI is committed to continuous improvement and is reviewing its risk assessment framework to ensure it is fit for purpose and transparent. This also responds to a recommendation of the audit by the ANAO. The ANAO's [report on trade measurement compliance activities](#) includes the full recommendations.

A note about compliance

Non-compliance can take many forms, such as:

- inappropriate measurement practices (for example, not adjusting shop scales to account for the weight of packaging in over-the-counter transactions)
- measurement labels that do not meet regulatory requirements
- short measure in packaged goods
- using measuring instruments that are unapproved or inaccurate.

Not all instances of non-compliance affect the integrity of measurement-based transactions. Where measurement errors are found they are usually relatively minor and large errors are rare.

Where non-compliance is assessed as resulting in a low level of harm with minimal likelihood of continued non-compliance, the trade measurement inspector will issue a non-compliance notice and may give advice if appropriate. A follow-up visit will check that any issues identified have been fixed. This is the most common course of action.

Even minor measurement errors can have a significant impact on competition and consumer disadvantage.



Summary of 2022–23 compliance activities and outcomes

Projected national audit activities 2022–23

Projected national audit activities	Projected targets	Outcome
Provide broad coverage across industry sectors in metropolitan and regional areas	8,000 audits	4,410 trader audits 684 fuel quality audits 1,318 tobacco plain packaging site visits
Test a wide range of instruments in use for trade	10,000 instruments	7,651 measuring instruments
Test a wide range of pre-packaged goods	60,000 lines of pre-packaged goods	29,966 lines of pre-packaged goods, including 107,065 individual packages.
Monitor trading practices	2,000 trial purchases	1,342 trial purchases
Monitor liquid fuel quality	750 fuel samples	712 samples analysed

NMI published projected national audit targets in the [National Compliance Plan 2022–23](#) in August 2022. These targets were based on available resourcing at the time of publishing, but could not be met throughout the financial year due to the adjustment of resourcing for critical priorities, including progressing measurement law reform and training of new trade measurement officers. Projected targets for 2023–24 have been adjusted based on recent experience and updated resourcing, including additional trade measurement inspectors.



Trader audits

In 2022–23 our trade measurement inspectors:

- audited over 4,400 business premises (includes initial and follow-up audits)
- tested around 7,650 measuring instruments
- inspected more than 125 weighbridges
- inspected more than 29,950 lines of packaged goods (107,065 individual packages) for correct measure and measurement labelling.

Year	Trader audits	Measuring instruments	Weighbridges	Packaged lines	Individual packages
2018–19	7,586	15,887	614	70,183	256,507
2019–20	7,600	13,588	479	78,290	203,320
2020–21	4,842	14,049	594	25,990	100,139
2021–22	3,131	7,118	473	17,360	59,862
2022–23	4,410	7,651	130	29,966	107,065

The most common enforcement response is for trade measurement inspectors to give advice and conduct follow-up inspections to ensure compliance. Most businesses are keen to do the right thing and promptly rectify trade measurement breaches once they are aware of them. This approach has proven successful:

- 66.7% of traders were compliant after an initial audit
- 92.3% of traders were compliant after follow-up audits.

Year	Initial audits	Initial compliance	Follow-up audits	Follow-up compliance	Estimated final non-compliance
2018–19	6,357	4,230 (66.5%)	1,229	992 (80.7%)	93.5%
2019–20	5,736	3,804 (66.3%)	1,864	1,394 (74.8%)	91.5%
2020–21	3,587	2,365 (65.9%)	1,255	918 (73.1%)	90.8%
2021–22	2,529	1,738 (68.7%)	602	481 (79.9%)	93.7%
2022–23	3,183	2,124 (66.7%)	1,227	945 (77.0%)	92.3%

Measuring instruments

Australia's trade measurement laws require that measuring instruments used for trade are:

- of an approved type
- verified by a licensed technician before use
- accurate while in use.

NMI trade measurement inspectors tested 7,651 measuring instruments in 2022-23, with 161 (2.1%) found to be inaccurate to consumer disadvantage. For example, if you buy 60.0 L of petrol and the dispenser had an error of 1% to consumer disadvantage, you would receive 59.4 L of petrol.

During the year, our trade measurement inspectors found 369 (4.8%) of instruments tested to be inaccurate to the consumers' advantage. For example, if you buy 60.0 L of petrol and the dispenser had an error of 1% to consumer advantage, you would receive 60.6 L of petrol.

It is worth noting that when an instrument is incorrect by more than the permitted error, even to consumer advantage, this is a non-compliance with the legislation as it is currently written.

When testing measuring instruments, trade measurement inspectors found more consumer advantage than consumer disadvantage during the 2022-23 financial year.

In 2022-23, instrument categories with the greatest proportion of instruments tested found to be inaccurate to consumer disadvantage included:

Instrument category	Example	Number tested	% with consumer disadvantage error
Retail fuel dispenser	Petrol and diesel pumps used at retail sites to refuel vehicles	1,956	4.9%
Weighing instruments (30 kg to 3 tonnes)	Scales used in measuring bulk items such as scrap metal, fruit and vegetables	131	4.6%
Weighing instruments (30 kg or less)	Scales used in supermarkets, butchers, fruit and vegetable stores	5,116	1.2%



Pre-packaged goods

A pre-packaged good is a single item made up of a product and packaging that is prepared and offered for sale. NMI trade measurement inspectors check pre-packaged goods in the Australian marketplace to ensure they contain the correct amount of product and are correctly marked.

Of the 29,966 lines of pre-packaged goods tested in 2022–23, 1,848 or 6.2% were found to contain less product than stated on the package. Most of the discrepancies were relatively small with a shortfall of less than 5%. For example, if a 1 kg packet rice had a shortfall of 5%, the consumer would receive 950 g (50 g less).

Types of pre-packaged goods with the greatest proportion of incorrect measurement in 2022–23 included:

Category	Pre-packaged goods examples	Lines tested	% with incorrect measurement
Seafood (fresh)	Includes fresh seafood such as whole fish, fish fillets and prawns	446	10.3%
Seafood (frozen)	Includes frozen seafood such as whole fish, fish fillets and prawns	534	8.1%
Meat (processed)	Includes processed meat such as ham, salami and pepperoni	1,906	10.3%
Meat (fresh – excluding seafood)	Includes meat products such as beef, lamb, pork (excluding seafood)	7,487	7.7%
Dairy (cheese)	Includes hard and soft cheese types such as cheddar and brie	3,430	8.5%

Further details on compliance and enforcement activity and outcomes in 2022–23 are detailed below.

The results outlined in this report are considered when setting NMI inspection priorities for trade measurement compliance activity in 2023–24.

Tare It program – concentrated national audit programs

Correct measurement plays a significant role in ensuring consumers ‘get what they pay for’ at the checkout. The Tare It program was undertaken as 3 concentrated one-week programs. The program focused on measurement compliance in over-the-counter transactions in the following trade groups:

- fruit and vegetable traders
- meat, fish and poultry traders
- delicatessens and smallgoods traders.

We used all available trade measurement inspectors across the country to complete audits of these trade groups during the nominated week.

Tare It – fruit and vegetables

During the targeted program, NMI trade measurement inspectors visited fruit and vegetable traders over a one-week period between 17–23 October 2022. The concentrated program focused on previously non-compliant and new traders.

During this audit we:

- visited 435 business premises
- tested 796 measuring instruments
- checked 4,837 lines of pre-packaged goods
- completed 327 trial purchases.

NMI trade measurement inspectors found 48.5% (or 211) of the 435 fruit and vegetable traders to be compliant. This improved to 70.1% during initial follow up audits. Non-compliances included:

- 76 measuring instruments not verified
- 54 measuring instruments inaccurate (consumer advantage)
- 12 measuring instruments inaccurate (consumer disadvantage)
- 321 lines of pre-packaged goods with short measure (product contained less product than represented on the package)

- 530 lines of pre-packaged goods with non-compliant labelling
- 116 failed trial purchases.

NMI issued 364 non-compliance notices for the following breaches:

- 89 relating to measuring instruments
- 145 relating to pre-packaged goods
- 130 relating to trading practice (for example not allowing for packaging during over-the-counter transactions).

Traders corrected most non-compliance following advice from trade measurement inspectors. Some traders received more than one non-compliance notice, or a non-compliance notice covering more than one breach.

NMI issued 18 warning letters and 2 infringement notices.

Tare It – meat, fish and poultry

During the targeted program, NMI trade measurement inspectors visited meat, fish and poultry traders over a one-week period between 20 and 27 March 2023. The concentrated program focused on previously non-compliant and new traders.

During this audit we:

- visited 520 business premises
- tested 807 measuring instruments
- checked 4,578 lines of pre-packaged goods
- conducted 395 trial purchases.

NMI trade measurement inspectors found 57.9% (or 301) of the 520 meat, fish and poultry traders to be compliant. This improved to 78.2% during initial follow-up audits. Non-compliances included:

- 31 measuring instruments not verified
- 60 measuring instruments inaccurate (consumer advantage)

- 16 measuring instruments inaccurate (consumer disadvantage)
- 328 lines of pre-packaged goods with short measure (product contained less product than represented on the package)
- 134 lines of pre-packaged goods with non-compliant labelling
- 112 failed trial purchases.

NMI issued 312 non-compliance notices for the following breaches:

- 83 relating to measuring instruments
- 101 relating to pre-packaged goods
- 128 for failure of trading practice (for example not allowing for packaging during over-the-counter transactions).

Traders corrected most non-compliance following advice from trade measurement inspectors. Some traders received more than one non-compliance notice, or a non-compliance notice covered more than one breach.

NMI issued one warning letter and one infringement notice.

Tare It – smallgoods and delicatessen

During the targeted program, NMI trade measurement inspectors visited smallgoods traders and delicatessens over a one-week period between 8–14 May 2023. The concentrated program focused on previously non-compliant and new traders.

During this audit we:

- visited 409 business premises
- tested 587 measuring instruments
- checked 5,664 lines of pre-packaged goods
- completed 283 trial purchases.

NMI trade measurement inspectors found 51.8% or 212 of the 409 smallgoods traders and delicatessens to be compliant. This improved to 76.8% during initial follow up audits.

Non-compliances included:

- 42 measuring instruments not verified
- 46 measuring instruments inaccurate (consumer advantage)
- 9 measuring instruments inaccurate (consumer disadvantage)
- 519 lines of pre-packaged goods with short measure (product contained less product than represented on the package)
- 289 lines of pre-packaged goods with non-compliant labelling
- 118 failed trial purchases.

NMI issued 279 non-compliance notices for the following breaches:

- 65 related to measuring instruments
- 96 related to pre-packaged goods
- 118 for failure of trading practices (for example shortfall offences from trial purchases).

Traders corrected most non-compliance following advice from trade measurement inspectors. Some traders received more than one non-compliance notice, or a non-compliance notice covered more than one breach.



Enforcement actions

NMI trade measurement inspectors issue non-compliance notices when they identify breaches of trade measurement law during trader audits. NMI considers all enforcement actions in line with our [National Compliance Policy](#).

We will consider escalating our response when:

- continued non-compliance is identified
- a breach detected in an initial audit is severe (such as significant shortfall in multiple product lines)
- contraventions are of high public interest or impact.

Available enforcement actions include:

- warning letters
- infringement notices with associated fines

- administrative agreements (enforceable undertakings)
- referral to the Commonwealth Director of Public Prosecutions (CDPP) for injunction or potential prosecution.

Any enforcement action, such as a warning letter or infringement notice, may cover more than one breach of trade measurement law.

NMI issued 18 infringement notices with \$27,700 in associated fines.

The CDPP decides whether to take forward a referral to prosecution. Prosecutions may also conclude in the year after any referral.

Year	Non-compliance notice	Warning letter	Infringement notice	Enforceable undertaking	Referral to CDPP	Conviction
2018–19	2,753	74	37 (\$43,050)	0	3	1
2019–20	2,234	188	100 (\$123,900)	2	1	1
2020–21	1,787	40	12 (\$18,510)	2	1	0
2021–22	926	35	18 (\$28,860)	0	0	0
2022–23	1,687	47	18 (\$27,700)	1	1	0

In 2022–23 the most common breaches subject to a warning letter were short measure in pre-packaged goods and trading practices. The most common breaches subject to an infringement notice were:

- short measure in pre-packaged goods
- trading practices breaches (incorrect operation of scales and not allowing for the weight of packaging during over-the-counter transactions).

Breaches by enforcement action 2022–23

Enforcement action	Inaccurate measuring instrument	Packaged goods (short measure)	Packaged goods (labelling)	Trading practices
Warning letter	28	65	15	78
Infringement notice	4	10	0	10



Achieving regulatory compliance through agreement

During 2022–23 we audited traders found to be non-compliant in previous years to evaluate their ongoing compliance. We used a range of tools to encourage compliance with trade measurement laws. This included enforcement action, administrative action, business education and industry engagement.

Importers and manufacturers

NMI concluded a 2 year enforceable undertaking with a food importer who supplied products with a shortfall on several occasions. After collaboration with the NMI, the importer has now applied a robust, risk-based process to check the quantity of products it imports.

The undertaking proved effective in addressing non-compliance within a shortened timeframe. NMI audits ensured responses to non-compliance were timely, effective and proportionate to the

risks presented by the non-compliance. The quality assurance improvements ensure a culture of compliance allowing the food importer to manage business and consumer transactions with confidence.

Licensed premises

Over the last 12 months we continued engagement with a retail group which operates licensed venues throughout Australia. This engagement addressed issues with non-compliance detected during the 2022 audit program. As part of the compliance agreement the trader has introduced new processes to improve compliance of their licensed venues including:

- training staff on procedures
- carrying out supervisory checks to ensure accuracy
- introducing internal audits to check practical measurement skills
- improving checks on the accuracy of measuring equipment.



Compliance and enforcement by trader type

More serious enforcement actions are considered when severe and or continued non-compliance is identified. Certain trader types continued to have higher rates of more serious non-compliance during 2022–23, reflecting ongoing issues in those sectors.

In 2022–23 audit programs, NMI investigated trader types with higher rates of serious non-compliance during 2021–22.

The data in this section aggregates results from all inspections completed throughout 2022–23, including those from concentrated audit programs.

Meat retail

Year	Initial audits	Non-compliant	Follow-up audits	Non-compliant	Warning letters	Infringement notices
2018–19	467	176 (38%)	161	28 (17%)	8	6 (\$7,350)
2019–20	610	309 (51%)	193	47 (24%)	74	14 (\$15,750)
2020–21	176	68 (39%)	187	65 (35%)	9	2 (\$2,220)
2021–22	78	36 (46%)	35	6 (17%)	4	1 (\$2,220)
2022–23	409	190 (47%)	170	44 (26%)	4	4 (\$4,705)

Breaches by enforcement action 2022–23²

Enforcement action	Inaccurate measuring instrument	Packaged goods (short measure)	Packaged goods (labelling)	Trading practices
Warning letter	1	11	4	6
Infringement notice	1	2	0	1

² Breach numbers may not have resulted in the same number of enforcement actions. That is, 3 breaches may result in one warning letter.

Supermarkets

Year	Initial audits	Non-compliant	Follow-up audits	Non-compliant	Warning letters	Infringement notices
2018–19	2,062	881 (43%)	298	59 (20%)	16	11 (\$12,600)
2019–20	1,186	304 (26%)	317	74 (23%)	10	9 (\$9,450)
2020–21	757	152 (20%)	305	72 (24%)	8	3 (\$3,330)
2021–22	493	179 (36%)	93	21 (23%)	5	4 (\$4,440)
2022–23	597	123 (21%)	266	46 (17%)	11	5 (\$12,740)

Breaches by enforcement action 2022–23

Enforcement action	Inaccurate measuring instrument	Packaged goods (short measure)	Packaged goods (labelling)	Trading practices
Warning letter	9	9	1	15
Infringement notice	1	5	0	5

Independent supermarkets

Year	Initial audits	Non-compliant	Follow-up audits	Non-compliant	Warning letters	Infringement notices
2019–20	405	152 (37.5%)	155	50 (32.3%)	9	10 (\$10,050)
2020–21	262	87 (33.2%)	136	43 (31.6%)	7	3 (\$3,300)
2021–22	405	168 (41.5%)	75	17 (22.7%)	2	3 (\$3,300)
2022–23	250	82 (32.8%)	214	44 (20.6%)	9	2 (\$5,550)

Breaches by enforcement action 2022–23

Enforcement action	Inaccurate measuring instrument	Packaged goods (short measure)	Packaged goods (labelling)	Trading practices
Warning letter	9	6	1	13
Infringement notice	1	1	0	3



Licensed premises

Year	Initial audits	Non-compliant	Follow-up audits	Non-compliant	Warning letters	Infringement notices
2019–20	1,060	311 (29.3%)	196	13 (6.6%)	25	23 (\$29,400)
2020–21	83	21 (25.3%)	26	2 (7.7%)	0	0 (\$0)
2021–22	354	103 (29.1%)	102	12 (11.8%)	5	0 (\$0)
2022–23	158	20 (12.7%)	98	16 (16.3%)	4	1 (\$1,110)

Breaches by enforcement action 2022–23

Enforcement action	Inaccurate measuring instrument	Packaged goods (short measure)	Packaged goods (labelling)	Trading practices
Warning letter	2	0	0	5
Infringement notice	0	0	0	1



Compliance by instrument type

The basis of any trade measurement transaction is an accurate measuring instrument. In 2022–23 more than 86.8% of instruments tested were compliant with legislative requirements. Our tests showed that:

- 2.1% of measuring instruments were inaccurate to consumer disadvantage
- 4.8% of measuring instruments were inaccurate to consumer advantage.

Measuring instruments are non-compliant if one or more of the following is identified:

- not verified by an authorised servicing licensee (or without a verification mark)
- failed to measure accurately – regardless of whether the inaccuracy resulted in consumer disadvantage or consumer advantage
- did not meet other standards necessary to comply with legislation, such as display issues, eccentricity, inadequate sealing or data plate irregularities.

Year	Instruments tested	Compliant	Not verified	Inaccurate (consumer advantage)	Inaccurate (consumer disadvantage)	Other non-compliance
2018–19	15,887	13,184 (83.0%)	611 (3.9%)	1,144 (7.2%)	385 (2.4%)	563 (3.5%)
2019–20	13,588	11,753 (86.5%)	415 (3.1%)	505 (3.7%)	342 (2.5%)	573 (4.2%)
2020–21	14,049	12,104 (86.2%)	413 (2.9%)	473 (3.4%)	341 (2.4%)	718 (5.1%)
2021–22	7,118	6,054 (85.1%)	305 (4.3%)	186 (2.6%)	258 (3.6%)	315 (4.4%)
2022–23	7,651	6,639 (86.8%)	298 (3.9%)	369 (4.8%)	161 (2.1%)	184 (2.4%)

Instrument types found to be inaccurate to consumer disadvantage

Instrument type	Year	Instruments tested	Inaccurate (consumer disadvantage)
Fuel dispensers (petrol and diesel)	2018–19	3883	211 (5.4%)
	2019–20	3699	193 (5.2%)
	2020–21	6258	245 (3.9%)
	2021–22	3970	227 (5.7%)
	2022–23	1956	95 (4.9%)
Weighing instruments (30 kg to 3 tonnes)	2018–19	298	13 (4.4%)
	2019–20	179	5 (2.8%)
	2020–21	54	4 (7.4%)
	2021–22	50	2 (4.0%)
	2022–23	131	6 (4.6%)
Beverage dispensers	2018–19	401	16 (4.0%)
	2019–20	1486	61 (4.1%)
	2020–21	152	6 (4.0%)
	2021–22	326	7 (2.1%)
	2022–23	130	0 (0.0%)

Compliance of retail fuel dispensers

Of 1,956 fuel dispensers tested in 2022–23:

- 65 (3.3%) had an error resulting in a consumer advantage (the consumer received more fuel than indicated on the display)
- 95 (4.9%) had an error resulting in a consumer disadvantage (the consumer received less fuel than indicated on the display).

Most dispensers found inaccurate to consumer disadvantage were in the range of 1 to 3 times the maximum permissible error of 0.3%. This equates to between 30 cents and 90 cents for every \$100 of fuel delivered. While this is a small sum for an individual consumer, if applied to 4.9% of all fuel sales in the year, it amounts to a loss between \$9 million and \$29 million for the Australian community.

Year	Petrol and diesel dispensers tested	Inaccurate (consumer advantage)	Inaccurate (consumer disadvantage)
2018–19	3883	157 (4.0%)	211 (5.4%)
2019–20	3699	191 (5.2%)	193 (5.2%)
2020–21	6258	221 (3.5%)	245 (3.9%)
2021–22	3970	87 (2.2%)	227 (5.7%)
2022–23	1956	65 (3.3%)	95 (4.9%)

Consumer complaints

Almost two-thirds of consumer complaints received during 2022–23 relate to allegations of short measure from fuel dispensers (liquid and gas). Thirty (8.6%) of 349 fuel-related complaints received were justified when investigated, consistent with results in previous years.

Year	Total complaints received	Fuel (liquid and gas) complaints	Fuel complaints justified (consumer disadvantage)
2018–19	767	494 (64%)	31 (6.3%)
2019–20	651	403 (62%)	14 (3.5%)
2020–21	449	260 (58%)	17 (6.5%)
2021–22	536	372 (69%)	16 (3.0%)
2022–23	507	349 (69%)	14 (2.8%)

Public weighbridge and servicing licensee compliance

Public weighbridge operators and servicing licensees help build trust and confidence in the accuracy of measurements used to determine the trade value of goods. NMI appoints:

- servicing licensees to verify the accuracy of trade measuring instruments
- public weighbridge licensees to ensure weighbridges made available to the public operate within regulatory requirements.

Compliance and monitoring activities to help ensure the integrity of the licensing system include:

- audit quality systems of servicing and public weighbridge licensees
- auditing recently verified measuring instruments to confirm they were properly verified.

We also monitor servicing licensee compliance through metrics, such as:

- auditing test reports submitted for complex instrument verifications
- licensees reporting their measuring instrument verifications
- licensees have the relevant licence subclass to verify measuring instruments
- verifications completed by verifiers holding appropriate competency for specific instrument types.

Licensing enforcement actions 2022–23

Enforcement action	2022–23
Non-compliance advice email	64
Warning letter	1
Infringement notice	1





Compliance of pre-packaged goods

In 2022–23, trade measurement inspectors checked 29,966 lines of pre-packaged goods (107,065 individual packages) to determine whether they:

- contained the correct amount (weight, volume or units) as displayed on the label
- displayed sufficient measurement marking (for example, weight, price per kilogram and total price for the good) in the correct format and position
- included correct packer identification (name and street address of packer if packed in Australia).

Most discrepancies detected in pre-packaged goods are typically small and are often quickly resolved following advice from the trade measurement inspector.

Year	Pre-packaged lines inspected	Individual packages	Lines with short measure	Lines with non-compliant labelling
2018–19	70,183	256,507	1,621 (2.3%)	1,606 (2.3%)
2019–20	78,290	203,320	1,269 (1.6%)	2,243 (2.9%)
2020–21	25,990	100,139	1,194 (4.6%)	1,125 (4.3%)
2021–22	17,360	59,862	678 (3.9%)	851 (4.9%)
2022–23	29,966	107,065	1,848 (6.2%)	1,844 (6.2%)

Meat and seafood consistently appear among the categories of pre-packaged goods, with the greatest proportion found to contain short measure. NMI will continue to focus on these product types during 2023–24.

Pre-packaged goods short measure 2022–23

Product type	Packaged lines inspected	Individual packages	Lines with short measure
Meat (processed)	1,906	6,882	196 (10.3%)
Seafood (fresh)	446	1,225	46 (10.3%)
Dairy (cheese)	3,430	10,934	293 (8.5%)
Seafood (frozen)	534	1,895	43 (8.1%)
Meat (fresh - excluding seafood)	7,487	22,537	579 (7.7%)

Pre-packaged goods – failure reasons

Pre-packaged good failure reason	Meat	Fruit and vegetables	Dairy	Pantry items	Confectionery and snack foods
Measurement Statement (S18JA Package must be marked with required package information)	144	746	61	54	92
Measurement Marking Compliance (S18JE Package must be marked in prescribed manner)	16	167	12	12	28
Name and Address (S18JA Package must be marked with required package information)	18	13	30	11	49
Shortfall - Non AQS - Single Article > 1% and ≤ 5% (R4.44(2))	441	162	160	5	27
Shortfall - Non AQS - Single Article ≤ 1% (R4.44(2))	183	114	74	5	19
Shortfall - Non AQS - Single Article > 5% (R4.44(2))	149	86	18	0	2
Shortfall - Non AQS - Group Test > 1% and ≤ 5% (R4.43(2))	63	42	67	3	39
Shortfall - Non AQS - Group Test > 5% (R4.43(2))	7	52	2	0	12

References in above table relate to sections of the [National Measurement Act 1960](#) or [National Trade Measurement Regulation 2009](#).

Working with government agencies to support the efficient delivery of programs

NMI uses its national footprint of trained and skilled trade measurement inspectors to deliver efficient marketplace audit programs for the Australian Government. In 2022–23 NMI worked with:

- Department of Health and Age Care (DoHAC) to deliver a Tobacco Plain Packaging (TPP) Inspection Program
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) to support the delivery of the national Fuel Quality Monitoring Program.

Tobacco Plain Packaging

NMI supports DoHAC in the administration and enforcement of the *Tobacco Plain Packaging Act 2011* through a memorandum of understanding (MoU). Under the MoU, NMI trade measurement inspectors are appointed as TPP Authorised Officers. They complete monitoring, compliance and enforcement activities, including TPP visits and complaint investigations. Our TPP Authorised Officers completed 1,318 site visits, meeting our obligations under the MoU.

Fuel Quality Monitoring Program

NMI supports the delivery of the national Fuel Quality Monitoring Program on behalf of the Liquid Fuels Branch (LFB), a section of DCCEEW. The program is administered under the *Fuel Quality Standards Act 2000*. Under this program, NMI trade measurement inspectors completed sampling activities to assess the quality of liquid fuels throughout the Australian supply chain.

During the 2022–23 financial year, NMI trade measurement inspectors completed 684 fuel quality audits and submitted 712 liquid fuel samples for analysis.

Of the 684 suppliers audited:

- 670 (98.0%) were compliant
- 14 (2.0%) were non-compliant.

Of the 14 suppliers that were non-compliant:

- 12 failed due to the fuel samples taken not conforming with the fuel quality standards
- 2 suppliers did not have adequate ethanol labelling information.

Of the 712 liquid fuel samples analysed during the 2022–23 financial year, 12 (1.7%) were found non-compliant as follows:

- 5 diesel samples had a flash point temperature lower than the minimum 61.5°C
- 2 unleaded petrol samples had olefin levels greater than the maximum limit of 18% volume
- 2 unleaded petrol samples had final boiling point temperatures higher than the maximum 210°C
- 1 premium unleaded 95 petrol sample had a motor octane number result lower than the minimum 85.0. It also had a research octane number lower than the minimum 95.0
- 1 premium unleaded 98 petrol sample had aromatic levels above the maximum of 45% volume
- 1 diesel sample had a distillation temperature above the maximum 360°C.

Non-compliant suppliers were advised of the outcome of the audit and measures to ensure that they comply with the fuel quality standards and fuel quality information standards.



Terminology

AQS – the Average Quantity System (AQS) confirms the measurement or quantity of packaged goods sold by measure (weight, volume, length, area or number). Products packed using the AQS method in Australia display the 'e' mark on the packaging

Consumer advantage – the error has resulted in the consumer getting more than they paid for

Consumer disadvantage – the error has resulted in the consumer getting less than they paid for

Fit for purpose – the measuring instrument is suitable to complete the task it is performing. For example, a counter scale in a delicatessen has the correct instrument class, type approval and scale increment to accurately measure deli products

Measuring instrument – a device used to measure a physical quantity. This could be a shop scale used to determine the weight of sausages at a deli or a petrol pump used to determine the number of litres of fuel sold

Major supermarkets – for example, Woolworths, Coles, Aldi and Metcash

Maximum Permissible Error – the value of the largest allowable error

Pre-packaged goods – a single item made up of a product and packaging that has been prepared and offered for sale

Representation – the way something is shown or described

Risk-based approach – NMI prioritises its compliance activities to focus on issues that have the greatest potential to cause harm to consumers or industry

Trial purchase – When auditing a business that sells products over the counter using a scale, the NMI trade measurement inspector may purchase a product before identifying themselves to the trader. The trade measurement inspector can determine if the businesses are, for example, correctly operating scales and allowing for the weight of packaging.





Australian Government

**Department of Industry,
Science and Resources**

**National
Measurement
Institute**

P: 1300 722 845

measurement.gov.au

customerservice@measurement.gov.au

ABN 74 599 608 295