
औद्योगिक दुर्घटनाओं का वर्गीकरण और
औद्योगिक चोटों की आवृत्ति एवं गंभीरता
दरों की गणना के लिए विधि
(दूसरा पुनरीक्षण)

**Method for Computation of
Frequency and Severity Rates for
Industrial Injuries and
Classification of Industrial
Accidents
(Second Revision)**

ICS 13.200

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FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Occupational Safety & Health Sectional Committee, CHD 08 and approved by the Chemical Division Council.

This standard was originally issued in 1966 with the following objectives in view:

- a) To help in evaluating the relative need for taking accident prevention measures in different departments of an establishment;
- b) To help in making an appraisal of the progress of an accident prevention campaign and making people safety-conscious;
- c) To provide encouragement when methods used for the prevention of accidents are successful; and
- d) To enable comparisons to be made.

This standard was first revised in 1983 incorporating the following modifications:

- a) Alignment of the definitions of 'partial disablement' and 'total disablement' and includes other definitions as given in the latest version of the *Workmen's Compensation Act, 1923* (India);
- b) The definition and method for computation of incidence rates were included;
- c) More comprehensive coverage was given to classification of accidents;
- d) An additional item covering the basis of assessment of work injury was included;
- e) A clause on statistical period was included so as to make comparison meaningful; and
- f) Further, comprehensive coverage to classification of accidents was modified with considerable assistance from AS 1885-1976 'Recording and measuring work injury experience', issued by the Standards Association of Australia.

In this revision, changes have been incorporated in the standard in line with *Workmen's Compensation (Amendment) Act, 2009* (India). Injuries namely 'guillotine amputation of tip of thumb without loss of bone', 'Loss of partial vision of one eye', etc have been incorporated. Scheduled charges for disabilities as given in Annex A have been updated in line with the above act.

The composition of the technical committee responsible for formulation of this standard is given in Annex C.

In reporting the result of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'.

Indian Standard

METHOD FOR COMPUTATION OF FREQUENCY AND SEVERITY RATES FOR INDUSTRIAL INJURIES AND CLASSIFICATION OF INDUSTRIAL ACCIDENTS

(Second Revision)

1 SCOPE

This standard prescribes basic methods for recording and classifying industrial accidents. It also includes details of work injury and gives the methods for computation of frequency, severity and incidence rates of work injuries in industrial premises. This would enable adoption of a uniform system of recording events associated with injuries and the determination of corrective action.

2 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

2.1 Accident

An unintended occurrence arising out of and in the course of employment of a person resulting in injury.

2.2 Death

Fatality resulting from an accident.

2.3 Disabling Injury (Lost Time Injury)

An injury causing disablement extending beyond the day of shift on which the accident occurred.

NOTE — An ideal system of accident statistics would take into account every occurrence causing injury however slight. Unfortunately, this is impracticable because the record of trivial injuries varies not only according to the number sustained but also according to the strictness with which a firm insists on this being reported. On the other hand, if an accident keeps a man away from work for a day or more, his absence is bound to be noticed. In other words, the 'one day' or 'one shift' accident has been chosen because it is a standard unit which cannot vary to a great extent from firm to firm or from year to year. This is, therefore, used for practical purposes as it is the nearest accurate figure to the ideal and is a very simple standard to use.

2.4 Non-disabling Injury

An injury which requires medical treatment only, without causing any disablement whether of temporary or permanent nature.

2.5 Reportable Disabling Injury (Reportable Lost Time Injury)

An injury causing death or disablement to an extent as prescribed by the relevant statute.

2.6 Days of Disablement (Lost Time)

In the case of disablement of a temporary nature, the number of days on which the injured person was partially disabled is as defined in 2.7. In the case of death or disablement of a permanent nature whether it be partial or total disablement as defined in 2.7 and 2.8 man-days lost means the charges in days of earning capacity lost due to such permanent disability or death as specified in AnnexA. In other cases the day on which the injury occurred or the day the injured person returned to work are not to be included as man-days lost; but all intervening calendar days (including Sundays or, days off, or days of plant shut down) are to be included. If after resumption of work, the person injured is again disabled for any period arising out of the injury which caused his earlier disablement, the period of such subsequent disablement is also to be included in the man-days lost.

2.7 Partial Disablement

This is of two types: disablement of a temporary nature which reduces the earning capacity of an employed person in any employment in which he was engaged at the time of the accident resulting in the disablement; and disablement of a permanent nature, which reduces his earning capacity in every employment which he was capable of undertaking at the time.

2.8 Total Disablement

Disablement, whether of a temporary or permanent nature, which incapacitates a workman for all work which he was capable of performing at the time of the accident resulting in such disablement, provided that permanent total disablement shall be deemed to result from every type of injury specified in Part A of Annex A or from any combination of injuries specified in Part B of Annex A where the aggregate percentage of the loss of earning capacity, as specified in that part against those injuries, amounts to one hundred percent.

2.9 Man-Hours Worked

The total number of employee – hours worked by all employees working in the industrial premises. It

includes managerial, supervisory, professional, technical, clerical and other workers including 'contractor's' labour.

2.10 Scheduled charge

Charges in days of earning capacity lost due to permanent disability or death (*see* Annex A).

3 CALCULATION OF MAN-HOURS WORKED

Man-hours worked shall be calculated from the pay roll or time clock recorded including overtime. When this is not feasible, the same shall be estimated by multiplying the total man-days worked for the period covered by the number of hours worked per day. The total number of man-days for a period is the sum of the number of men at work on each day of the period. If the daily hours vary from department to department separate estimates shall be made for each department and the result added together. When actual man-hours are not used, the basis on which the estimates are made shall be indicated.

4 CLASSIFICATION OF ACCIDENTS

4.1 The principal factors related to causation of accidents are:

- a) agency,
- b) unsafe mechanical or physical condition,
- c) unsafe act,
- d) unsafe personal factor,
- e) type of accident,
- f) nature of injury, and
- g) location of injury.

A standard classification as given in Annex B could serve as a guide for detailed analysis of accidents for the study of the various causative factors and their relationships.

4.2 Each of the items of classification in Annex B has been assigned a code number which may be used to identify the recorded items of information. When mechanical tabulation procedures are used, the code number will serve as a useful guide for sorting and tabulating the data.

5 ASSESSMENT OF WORK INJURY

5.1 Basis of Assessment

5.1.1 *General* — Thorough investigation of all factors relating to the occurrence of each reported injury is essential. Determination as to whether or not the injury should be considered a work injury under the provisions of this standard shall be based on the evidence collected during investigations.

5.1.2 *Evidence*- The evidence to be considered in determining whether or not the reported injury should be considered a work injury may include, but not necessarily be limited to, the following:

- a) Facts resulting from investigation of the injured employee's work activities and working environment to which the injury might be related;
- b) Statements (written if possible) of the injured employee, fellow employees, witnesses and supervisors;
- c) Medical reports acceptable to the authority classifying the work injury; and
- d) Facts concerning the injured employee's work activity for other employers, and other off-the-job activities, injuries and illnesses.

5.2 Assessment of Special Cases

5.2.1 *General*

Before inclusion in the record special case should be assessed. Clauses 5.2.2 to 5.2.15 are intended to assist in such assessment but these provisions/rules should not be used to exclude a genuine work injury from the record.

5.2.2 *Inguinal Hernia* — An inguinal hernia shall be considered a work injury only if it is precipitated by an impact, sudden effort, or severe strain, and meets, after investigation, all of the following conditions:

- a) There is clear evidence of an accidental event or an incident, such as a slip, trip or fall, sudden effort or over-exertion;
- b) There was actual pain in the hernial region at the time of the accident or incident; and
- c) The immediate pain was so acute that the injured employee was forced to stop work long enough to draw the attention of his foreman or fellow employee, or the attention of a physician was secured within 12 hours.

5.2.3 *Back Injury* — A back injury or strain shall after investigation, be considered a work injury if:

- a) There is clear evidence of an accident event or an incident event or an incident; such as a slip, trip or fall, sudden effort or over-exertion, or blow on the back; and
- b) A medical practitioner, authorized to treat the case, is satisfied after a complete review of the circumstances of the accident or incident that the injury could have arisen out of the accident or incident.

5.2.4 *Aggravation of pre-existing condition* — If aggravation of pre-existing physical deficiency arises out of or in the course of employment, the resulting

disability shall be considered a work injury and shall be classified according to the ultimate extent of the injury except that if the injury is an inguinal hernia or a back injury, the requirement of 5.2.2 or 5.2.3 shall apply.

5.2.5 Aggravation of Minor Injury — If a minor injury is aggravated because of diagnosis or treatment, either professional or non-professional, or if infection or other symptoms develop later, either on the job or off-the-job the injury shall be classified according to its ultimate extent.

5.2.6 Cardiovascular Diseases — This term is used to cover the following groups:

- a) Rheumatic heart disease,
- b) Hypertensive disease,
- c) Ischaemic disease,
- d) Heart disease secondary to pulmonary disease,
- e) Cerebrovascular disease,
- f) Disease of arteries, arterioles and capillaries, and
- g) Disease of veins and lymph vessels.

5.2.6.1 Cardiovascular disease shall not be recorded as work injuries unless:

- a) The symptoms were so severe during working hours that the attention of a supervisor was drawn to them; and
- b) A medical practitioner, authorized to treat the case, satisfied after a thorough investigation, that the disease or aggravation of the disease was work caused.

5.2.7 Miscellaneous — The category includes the following:

- a) Purposely inflicted injuries — An injury purposely inflicted by the employee or another person shall be considered a work injury if it arises out of or in the course of employment;
- b) Skylarking — An injury inflicted by or arising out of skylarking during employment shall be considered a work injury.

5.2.8 Other disabilities- The following are examples of injuries which shall be considered work injuries if they arise out of or in the course of employment:

- a) Animal and insect bites;
- b) Skin irritation and infections;
- c) Muscular disability;
- d) Injuries arising from exposure to extreme temperature (hot or cold); and
- e) Loss of hearing, sight, taste, feel or sense of smell.

6 COMPUTATION OF FREQUENCY, SEVERITY AND INCIDENCE RATES

6.1 Frequency Rate

The frequency rate shall be calculated both for lost time injury and reportable lost time injury as follows:

$$F_A = \frac{\text{Number of lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

$$F_B = \frac{\text{Number of reportable lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

NOTES

1 If the injury does not cause loss of time in the period in which it occurs but in a subsequent period, the injury should be included in the frequency rate of the period in which the loss of time begins.

2 If an injury causes intermittent loss of time, it should only be included in the frequency rate once, that is, when the first loss of time occurs.

3 Since frequency rate F_B is based on the lost time injuries reportable to the statutory authorities, it may be used for official purposes only. In all other cases, frequency rate F_A should be used for comparison purposes.

6.2 Severity Rate

The severity rate shall be calculated from man-days lost both of lost time injury and reportable lost time injury as follows:

$$S_A = \frac{\text{Man-days lost due to lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

$$S_B = \frac{\text{Man-days lost due to reportable lost time injury} \times 1\,000\,000}{\text{Man-hours worked}}$$

NOTE — Since severity rate S_B is based on the lost time injuries reportable to the statutory authorities, it should be used for official purposes only. In all other cases severity rate S_A should be used for comparison purposes.

6.2.1 Calculation of man-days lost under 6.2 shall be based on the following:

- a) Man-days lost due to temporary total disability;
- b) Man-days lost according to schedule of charges for death and permanent disabilities as given in Annex A. In case of multiple injury, the sum of schedule charges shall not be taken to exceed 6 000 man-days;
- c) Days lost due to injury in previous periods, that is, if any accident which occurred in previous period is still causing loss of time in the period under review, such loss of time is also to be included in the period under review;
- d) In the case of intermittent loss of time, each period should be included in the severity rate for the period in which the time is lost; and
- e) If any injury is treated as a lost time injury in

one statistical period and subsequently turns out to be a permanent disability; the man-days charged to the injury shall be subtracted from the schedule charge for the injury when permanent disability becomes known.

6.3 Incidence Rate

6.3.1 General incidence rate is the ratio of the number of injuries to the number of persons during the period under review. It is expressed as the number of injuries per 1 000 persons employed.

The incidence rate may be calculated both for lost-time injuries and reportable lost-time injuries as follows:

Lost-time injury incidence rate

$$= \frac{\text{Number of lost time injuries} \times 1\ 000}{\text{Average number of persons employed}}$$

Injury incidence rate

$$= \frac{\text{Number of reportable lost-time injuries} \times 1\ 000}{\text{Average number of persons employed}}$$

6.4 Statistical Period

Rates for any period, that is month, quarter or year shall include injuries which occurred during the period, together with any injuries which occurred in the previous 12 months and which have not already been included in earlier calculations.

6.4.1 An injury which occurred in a previous period and which did not cause lost time at the time of occurrence, but caused lost time in the current period, shall be included as a lost-time injury in the current period.

6.4.2 When calculating duration rates, the time lost for the period shall include time lost in the current period caused by injuries which occurred in previous period.

ANNEX A

(Clauses 2.6, 2.8, 2.10 and 6.2.1)

TABLE 1 SCHEDULED CHARGES FOR DISABILITIES*

Sl No	Description of injury	Percentage of loss of earning capacity	Equivalent man-days lost
(1)	(2)	(3)	(4)
Part A Total Disablement			
i)	Death	100	6 000
ii)	Loss of both hands or amputation at higher sites	100	6 000
iii)	Loss of hand and foot	100	6 000
iv)	Double amputation through leg or thigh, or amputation through leg or thigh on one side and loss of other foot	100	6 000
v)	Loss of sight to such an extent as to render the claimant unable to perform any work for which eyesight is essential	100	6 000
vi)	Very severe facial disfigurement	100	6 000
vii)	Absolute deafness	100	6 000
Part B Partial Disablement			
<i>a) Amputation Cases – Upper Limbs (Either Arm)</i>			
viii)	Amputation through shoulder joint	90	5 400
ix)	Amputation below shoulder with stump less than 203 mm [20.32 cm] from tip of acromion	80	4 800
x)	Amputation from 203 mm from tip of acromion to less than 114 mm [11.43 cm] below tip of olecranon	70	4 200

(Contd.)

xi)	Loss of hand or thumb and four fingers of one hand or amputation from 114 mm [11.43 cm] below tip of olecranon	60	3 600
xii)	Loss of thumb	30	1 800
xiii)	Loss of thumb and its metacarpal bone	40	2 400
xiv)	Loss of four fingers of one hand	50	3 000
xv)	Loss of three fingers of one hand	30	1 800
xvi)	Loss of two fingers of one hand	20	1 200
xvii)	Loss of terminal phalanx of thumb	20	1 200
xviii)	Guillotine amputation of tip of thumb without loss of bone	10	600
<i>b) Amputation Cases – Lower Limbs</i>			
xix)	Amputation of both feet resulting in end-bearing stumps	90	5 400
xx)	Amputation through both feet proximal to the metatarso-phalangeal joint	80	4 800
xxi)	Loss of all toes of both feet through the metatarsophalangeal joint	40	2 400
xxii)	Loss of all toes of both feet distal to the proximal inter-phalangeal joint	30	1 800
xxiii)	Loss of all toes of both feet distal to the proximal inter-phalangeal joint	20	1 200
xxiv)	Amputation at hip	90	5 400
xxv)	Amputation below hip with stump not exceeding 127 mm [12.7 cm] in length measured from tip of great trochanter	80	4 800
xxvi)	Amputation below hip with stump exceeding 127 mm [12.7 cm] in length measured from tip of great trochanter but not beyond middle thigh	70	4 200
xxvii)	Amputation below middle thigh to 89 mm [8.89 cm] below knee	60	3 600
xxviii)	Amputation below knee with stump exceeding 89 mm [8.89 cm] but not exceeding 127 mm [12.7 cm]	50	3 000
xxix)	Amputation below knee with stump exceeding 127 mm [12.7 cm]	50	3 000
xxx)	Amputation of one foot resulting in end-bearing	50	3 000
xxxi)	Amputation through one foot proximal to the metatarso-phalangeal joint	50	3 000
xxxii)	Loss of all toes of one foot through the metatarso-phalangeal joint	20	1 200
<i>c) Other Injuries</i>			
xxxiii)	Loss of one eye, without complications the other being normal	40	2 400
xxxiv)	Loss of vision of one eye, without complications or disfigurement of eye-ball, the other being normal	30	1 800
xxxv)	Loss of partial vision of one eye	10	600
<i>d) Loss of fingers of Right or Left Hand</i>			
<i>(1) Index fingers</i>			
xxxvi)	Whole	14	840
xxxvii)	Two phalanges	11	660
xxxviii)	One phalanx	9	540
xxxix)	Guillotine amputation of tip without loss of bone	5	300
<i>(2) Middle finger</i>			
xl)	Whole	12	720

(Contd.)

Table 1 — (Concluded)

xli)	Two phalanges	9	540
xlii)	One phalanx	7	420
xlili)	Guillotine amputation of tip without loss of bone	4	240
<i>(3) Ring or little finger</i>			
xliv)	Whole	7	420
xlv)	Two phalanges	6	360
xlvi)	One phalanx	5	300
xlvii)	Guillotine amputation of tip without loss of bone	2	120
<i>(a) Loss of Toes of Right or Left Foot</i>			
<i>(1) Great toe</i>			
xlviili)	Through metatarso-phalangeal joint	14	840
xlxi)	Part, with some loss of bone	3	180
<i>(2) Any other toe</i>			
l)	Through metatarso-phalangeal joint	3	180
li)	Part, with some loss of bone	1	60
<i>(3) Two toes of one foot excluding great toe</i>			
lii)	Through metatarso-phalangeal joint	5	300
liii)	Part, with some loss of bone	2	120
<i>(4) Three toes of one foot, excluding great toe</i>			
liv)	Through metatarso-phalangeal joint	6	360
lv)	Part, with some loss of bone	3	180
<i>(5) Four toes of one foot, excluding great toe</i>			
lvi)	Through metatarso-phalangeal joint	9	540
lvii)	Part, with some loss of bone	3	180

NOTES

1 Complete and permanent loss of the use of any limb or member referred to in this appendix shall be deemed to be the equivalent of the loss of that limb or member.

2 Maximum scheduled charges in case of any injured person shall be 6000 man-days.

* Based on *Employees Compensation Act, 1923* as amended by the *Workmen's Compensation (Amendment) Act 2009 (45) of 2009*. These data shall be superseded by the details of the latest act as when amends.

ANNEX B*(Clauses 4.1 and 4.2)***CLASSIFICATION OF INDUSTRIAL ACCIDENTS****B-1 CLASSIFICATION ACCORDING TO AGENCY**

(Agency is the object or substance which is most closely associated with the accident causing the injury and with respect to which adoption of a safety measure could have prevented the accident)

<i>Code No.</i>	<i>Particulars</i>		<i>motors</i>
		2011	Steam engines
		2012	Internal combustion engines
		2012	Others
		202	<i>Transmission Machinery</i>
		2021	Transmission shafts
		2022	Transmission belts, cable pulleys, pinions, chains, gears
20	<i>Machines</i>		
201	<i>Prime-movers, except electrical</i>	2029	Others

203	<i>Metal working Machines</i>	2121	Inter-urban railways
2031	Power presses	2122	Rail transportation in mines, tunnels, quarries, industrial establishments, docks, etc
2032	Lathes		
2033	Milling machines		Others
2034	Abrasive wheels	2129	<i>Other Wheeled Means of Transportation, Excluding Rail Transportation</i>
2035	Mechanical shears	213	Tractors
2036	Forging machines		Lorries
2037	Rolling mills	2131	Trucks
2039	Others	2132	Motor vehicles, not elsewhere classified
204	<i>Wood and Associated Machines</i>	2133	Animal-drawn vehicles
2041	Circular saws	2134	Hand-drawn vehicles
2042	Other saws		Others
2043	Moulding machines	2135	<i>Means of Air Transportation</i>
2044	Overhand planes	2136	<i>Means of Water Transportation</i>
2049	Others	2139	Motorised means of water transportation
205	<i>Agricultural Machines</i>	214	Non-motorised means of water transportation
2051	Reapers (including combined reapers)	215	<i>Other Means of Transport</i>
2052	Threshers	2151	Cable cars
2059	Others	2152	Mechanical conveyors, except cable-cars
206	<i>Mining Machinery</i>		Others
2061	Drilling and boring machine including augurs	219	<i>Other Equipment</i>
2062	Cutting machine	2191	<i>Pressure Vessels</i>
2063	Loading machine including scrapers	2192	Boilers
2064	Cutter-loaders including other continuous miners	2199	Pressurised containers
2069	Others	22	Pressurised piping and accessories
209	<i>Other Machines Not Elsewhere Classified</i>	221	Gas cylinders
2091	Earth-moving machines	2211	Vacuum vessels
2092	Spinning, weaving and other textile machines	2212	Others
2093	Machines for the manufacture of foodstuffs and beverages	2213	<i>Furnaces, Ovens, Kilns</i>
2094	Machine for the manufacture of paper and leather	2214	Blast furnaces
2095	printing machines	2215	Refining furnaces
2099	Others	2219	Other furnaces
21	<i>Means of Transportation and Moving Equipment</i>	222	Kilns
211	<i>Lifting Machines and Appliances</i>	2221	Ovens
2111	Cranes	2222	<i>Refrigerating Plants</i>
2112	Lifts and elevators	2223	<i>Electrical Installations, Including Electric Motors but Excluding Electric Hand Tools</i>
2113	Winches	2224	Rotating machines
2114	Pulley blocks	2225	Conductors
2119	Others	223	Control apparatus
212	<i>Means of Rail Transportation</i>	224	Others

225	<i>Electric Hand Tools</i>		<i>Tunneling</i>
226	<i>Tools, Implements and Appliances Except Electric Hand Tools</i>	251	<i>Underground Mining and Tunneling</i>
2261	Power-driven hand tools, except electric hand tools	2511	Roof
		2512	Side and face
2262	Hand tools, not power-driven	2513	Floor
2269	Others	2514	Mine shaft
227	<i>Ladders, Mobile Ramps</i>	2515	Water
228	<i>Scaffolding</i>	2516	Fire
229	<i>Other Equipment not Elsewhere Classified</i>	2517	Others
		252	<i>Opencast Mining (Including Quarrying)</i>
23	<i>Materials, substances and Radiations</i>	2521	Overhang
231	<i>Explosives</i>	2522	Side face
232	<i>Dusts, Gases, Liquids and Chemicals, Excluding Explosives</i>	2523	Ground
		2524	Water
2321	Dusts	2525	Fire
2322	Gases, vapours, fumes	2529	Others
2323	Liquids	26	<i>Other Agencies, not Elsewhere Classified</i>
2324	Chemicals not elsewhere classified	261	<i>Animals</i>
2329	Others	2611	Live animals
233	<i>Flying Objects Other Than Due to Explosion</i>	2612	Animals products
		262	<i>Other Agencies Not Elsewhere Classified</i>
234	<i>Radiations</i>	27	<i>Agencies Not Classified for Lack of Sufficient Data</i>
2341	Ionising radiations	29	<i>Other Agencies</i>
2349	Others		
239	<i>Other Materials and Substances not Elsewhere Classified</i>		
24	<i>Working Environment</i>		
241	<i>Outdoor</i>		
2411	Weather		
2412	Traffic and working surfaces		
2413	Water		
2414	Fire	10	Improperly guarded agency
2419	Others	20	Defects in agency
242	<i>Indoor</i>	30	Hazardous arrangement, procedure, etc in, on, or apparel
2421	Floors	40	Improper illumination
2422	Confined quarters	50	Unsafe dress or apparel
2423	Stairs	60	Improper ventilation
2424	Other traffic and working surfaces	70	Others
2425	Floor openings and wall openings		
2426	Environmental factors (Lighting, ventilation, temperature, noise etc.)		
2427	Water		
2428	Fire		
2429	Others	10	Operating without authority, failure to secure or warn
25	<i>Other Agencies – Mining and</i>		

B-2 CLASSIFICATION ACCORDING TO UNSAFE MATERIAL OR PHYSICAL CONDITIONS

(This identifies the unsafe mechanical or physical condition or conditions related to the agency, which contributed to the causation of accident)

B-3 CLASSIFICATION ACCORDING TO THE UNSAFE ACT

(This identifies the deviation from the accepted and laid down safe procedure, which contributed to the causation of accident)

- 20 Operating at unsafe speed
- 30 Marking safety devices inoperative
- 40 Using unsafe equipment, hand instead of equipment, or equipment unsafely
- 50 Unsafe loading, placing, mixing, combining, etc
- 60 Taking unsafe position or posture
- 70 Others

B-4 CLASSIFICATION ACCORDING TO UNSAFE PERSONAL FACTOR

(This identifies the anatomical, physiological or the psychological characteristic which permitted or occasioned the selected unsafe act)

- 10 Unsuitable anatomical, physiological, or psychological characteristics
- 20 Lack of knowledge or skill
- 30 Unsuitable mechanical or physical conditions, social environment, etc.

B-5 CLASSIFICATION ACCORDING TO TYPE OF ACCIDENTS

(This type of accident is the manner in which the object or substance causing the injury comes into contact with the injured person, or the movement of the injured person which resulted in the injury)

- 10 *Falls of Persons*
- 101 Falls of persons from heights (trees, building, mine trenches, scaffolds, ladders, machines, vehicles) and into depths (wells, ditches, excavations, shafts, holes in the ground)
- 102 Fall of persons on the same level
- 11 *Fall of Objects*
- 111 Cave-ins (earth, rocks, stone)
 - 1111 Cave-in or fall of roof
 - 1112 Cave-in or fall of side and face
 - 1113 Cave-in or collapse of shaft
 - 1114 Premature collapse of ground
 - 1115 Bumps and rock-bursts
- 112 Slides (earth, rock, stone, snow)
- 113 Subsidence of ground
- 114 Collapse of buildings, walls, scaffolds, ladders, piles of goods, etc
- 115 Fall of cages, skips and kibbles
- 116 Fall of objects during handling
- 12 Stepping on, Striking Against or Struck by Object Excluding Falling Objects
- 121 Stepping on objects
- 122 Striking against stationary objects (except impacts due to previous fall)
- 123 Striking against moving objects

124 Struck by moving objects (including flying fragments and particles) excluding falling Objects

- 13 Caught in or Between Objects
- 131 Caught in an object
- 132 Caught between a stationary object and moving object
- 133 Caught between moving objects (except flying or falling objects)
- 14 Over-Exertion or Wrong Movements
- 141 Over-exertion in lifting objects
- 142 Over-exertion in pushing or pulling objects
- 143 Over-exertion in handling or throwing objects
- 144 Wrong movements
- 15 Exposure to or Contact with Extreme Temperature
- 151 Exposure to or contact with heat (atmosphere or environment)
- 152 Exposure to or contact with cold (atmosphere or environment)
- 153 Contact with fire, hot substances or objects
- 154 Contact with very cold substances or objects
- 16 *Exposure to or Contact with Electric Current*
- 17 *Exposure to or Contact with Harmful Substances, Including Radiation*
- 171 Contact by inhalation, ingestion or absorption of harmful substances including gases
- 172 Exposure to ionising radiations
- 173 Exposure to radiations other than ionising radiations
- 18 *Explosions*
- 181 Explosion
- 182 Gas explosion
- 183 Dust explosion
- 184 Others
- 19 Others
- 191 Inundations and eruption
- 192 Exposure to high noise
- 193 Bursting and rupture of vessels

B-6 CLASSIFICATION ACCORDING TO NATURE OF THE INJURY

(This identifies the injury in terms of its principal physical characteristics)

310 *Fractures*

Includes simple fractures; fractures with injuries to soft parts of the body (compound fracture); fractures with injuries to articulations (dislocations, etc); fractures with internal or nerve injuries.

320 *Dislocations*

Includes subluxations and displacements.

Excludes fracture dislocations (310).

325 *Sprains and Strains*

Includes, unless associated with an open wound, the ruptures, tears, and locations of muscles, tendons, ligaments and joints, as well as hernias due to over exertion.

330 *Concussions and Other Internal Injuries*

Includes, unless fractures are involved, all internal concussions, haemorrhages, lacerations, ruptures.

Excludes those injuries with fractures (310).

340 *Amputations and Enucleations*

Includes traumatic avulsion of eye.

341 *Other Wounds*

Includes lacerations, open wounds, cuts, contusions with wounds, scalp wounds, as well as loss of nails or ears; includes wounds involving injury to nerves.

Excludes traumatic amputations, enucleations; avulsion of eye (340) compound fracture (310); burns with open wounds (360); superficial injuries (350).

350 *Superficial Injuries*

Includes abrasions, scratches, blisters, bites of non-venomous insects, superficial wounds; also includes superficial injuries due to foreign bodies entering in the eye.

355 *Contusions and crushings*

Includes haemarthrosis, haematoma and bruises; contusions and crushing with fracture (310); and contusions and crushings with an open wound (341).

360 *Burns*

Includes burns from hot objects; from fire; scales; friction burns; radiation burns (infra-red); chemical burns (external burns only); burns with open wounds.

Excludes burns due to swallowing a corrosive or caustic substance (370); sunburn (380); effects of lightning (380); burns due to electric current (382); and radiation effects other than burns (383).

370 *Acute Poisonings*

Includes the effects of the injection, ingestion, absorption or inhalation of toxic, corrosive or caustic substances; bites of venomous insects or animals; asphyxiation by carbon monoxide or other toxic gases.

Exclude external chemical burns (360).

380 *Effects of weather, Exposure and Related Conditions*

Includes effects of reduced temperature (frost-bite); the effect of heat and isolation (heat strokes, sunstrokes); barotrauma (effects of high altitude, decompression caused due to working in compressed air well); the effects of lightning; sound trauma (total or partial loss of hearing as a separate injury, not a sequel to another injury).

381 *Asphyxia*

Includes drawing asphyxiation or suffocation by compression, constriction or strangulations; also includes asphyxiation by suppression or reduction of oxygen in the surrounding atmosphere and asphyxiation by foreign bodies in the respiratory tract.

Excludes asphyxiation by carbon monoxide or other toxic gases (370).

382 *Effects of Electric Currents*

Includes electrocution; electrical shock and burn due to electric current.

Excludes burns caused by electrical heating appliances (370) and the effects of lightning (380).

383 *Effects of Radiations*

Includes effects caused by X-rays, radio-active substances, ultra-violet rays, ionising radiations.

Excludes burns due to radiations (360) and sunstrokes (380).

390 *Multiple Injuries of Different Nature*

This group should be used only for case where the injured person sustained several injuries of different nature and no injury is obviously more severe than the others.

In case of multiple injuries suffered in one accident where one of the injuries is obviously more severe than the others, then this accident should be classified in the group corresponding to the nature of the more obviously severe injury.

399 *Others and Unspecified Injuries*

This group should only be used to classify injuries which cannot be classified elsewhere. Includes various early complications of trauma and pathological reaction which should be classified in this group only when the nature of the antecedent injury is unknown.

B-7 CLASSIFICATION ACCORDING TO THE LOCATION OF THE INJURY

(Location of injury identifies the part of the injured person's body directly affected by the injury identified).

NOTE — The groups relating to multiple locations (*see* Code No. 46) should be used only to classify cases where the victim suffers from several injuries to different parts of the body and no injury obviously is more severe than the others. When in an accident which caused multiple injuries located at different parts of the body one of these injuries is obviously more severe than the others, this accident, should be classified in the group corresponding to the location of the obviously more severe injury. For example, a fracture of the leg accompanied by the scratch of the hand should be classified in group 454.

- 41 *Head*
- 411 Cranium region (skull brain, scalp)
- 412 Eye (including orbit and optic nerve)
- 413 Ear
- 414 Mouth (including lips, teeth and tongue)
- 415 Nose
- 416 Face, locations not classified elsewhere
- 417 Head, multiple locations
- 418 Head, unspecified location
- 42 *Neck (including throat and Cervical Vertebrae)*
- 43 *Trunk*
- 431 Back (spinal column and adjoining muscles, spinal cord)
- 432 Chest (ribs, sternum, internal organs of the chest)
- 433 Abdomen (including internal organs)
- 434 Pelvis
- 438 Trunk, multiple locations
- 439 Trunk, unspecified location
- 44 *Upper Limb*
- 441 Shoulder (including clavicle and shoulder blade)
- 442 Upper limb
- 443 Elbow
- 444 Forearm
- 445 Wrist
- 446 Hand (except fingers alone)
- 447 Fingers
- 448 Upper limb, multiple locations
- 449 Upper limb, unspecified location
- 45 *Lower Limb*
- 451 Hip
- 452 Thigh (upper leg)
- 453 Knee
- 454 Leg (lower leg)
- 455 Ankle
- 456 Foot (except toes alone)
- 457 Toes
- 458 Lower Limb, multiple locations
- 459 Lower limb, unspecified location
- 46 *Multiple Locations*
- 461 Head and trunk, head and one or more limbs
- 462 Trunk and one or more limbs
- 463 One upper limb and one lower limb or more than two limbs
- 464 Other multiple locations
- 465 Multiple locations, unspecified
- 47 *General Injuries*
- [This group should be used only when the functioning of an active body system has been affected without a specific injury (for example, poisoning, etc); when the systemic damage results from an injury a specific part of the body (for example, a fracture of the spinal column involving injury to the spinal cord) the location of the injury to this part of the body (in this case the spinal column) should be coded].
- 471 Circulatory system in general
- 472 Respiratory system in general
- 473 Digestive system in general
- 474 Nervous system in general
- 475 Other general injuries
- 476 General injuries, unspecified
- 49 *Unspecified Location of Injury*
- (This group should only be used when no information is available to identify the part of the body affected).

ANNEX C

(Foreword)

COMMITTEE COMPOSITION

Occupational Safety & Health Sectional Committee, CHD 08

<i>Organization(s)</i>	<i>Representative(s)</i>
Director General, National Safety Council	SHRI V. B. SANT (<i>Chairman</i>)
Airport Authority of India, New Delhi	SHRI BAKHSHISH SINGH SHRI ROSHAN LAL (<i>Alternate</i>)
Alkali Manufacturers' Association of India, New Delhi	SHRI K. SRINIVASAN SHRI HARI SARAN DAS (<i>Alternate</i>)
Atomic Energy Regulatory Board, Mumbai	DR R. BHATTACHARYA
Bhabha Atomic Research Centre, Mumbai	SHRI S. SOUNDARARAJAN SHRI S. D. BHARAMBE (<i>Alternate</i>)
Central Institute of Mining & Fuel Research, Dhanbad	DR J. K. PANDEY
Central Leather Research Institute, Chennai	SHRI M. SURIYANARAYANAN
Coal India Limited, New Delhi	AWAITED
Common Cause, New Delhi (Adopted by CHDC.)	SHRI KAMAL KANT JASWAL SHRI SURJIT KISHORE DAS (<i>Alternate</i>)
Confederation of Indian Industries, New Delhi	SHRI SHIKHAR JAIN SHRI RAMESH A BAGI (<i>Alternate</i>)
Consumer Education & Research Centre, Ahmedabad	DR C. J. SHISHOO SHRI S. YELLORE (<i>Alternate</i>)
Deptt. of Industrial Policy and Promotion, New Delhi	SHRI T. S. G. NARAYANNEN SHRI S. K. JAIN (<i>Alternate</i>)
Department of Space (ISRO), Sriharikota	SHRI SHYAMAL KUMAR KANUNGO SHRI V. K. SRIVASTAVE (<i>Alternate</i>)
Directorate General of Mines Safety, Dhanbad	DIRECTOR OF MINES (MSE) [DY DIRECTOR, MINES SAFETY (HQ)] (<i>Alternate</i>)
Directorate General Factory Advice Service & Labour Institute, Mumbai	SHRI A.SREERAMULU SHRI TANOJ CHANDAN (<i>Alternate</i>)
Directorate General of Health Services, New Delhi	DR A. K. MANDAL DR A. N. SINHA (<i>Alternate</i>)
Directorate of Industrial Safety and Health, Gujarat	NOMINATION AWAITED
Directorate of Industrial Safety and Health, Mumbai	SHRI VILAS SUDHAKAR MORAY SHRI A. K. DONGRE (<i>Alternate</i>)
Directorate of Standardization, Ministry of Defence, New Delhi	SHRI P. S. AHUJA LT COL TEJINDER SINGH (<i>Alternate</i>)
Employee State Insurance Corporation, New Delhi	DR DEEPAK KUMAR SHARMA DR RAVINDRA PAWAR (<i>Alternate</i>)
Hindustan Unilever Ltd, Mumbai	SHRI SANJAY HARLAKA SHRI RAKESH WADALKAR (<i>Alternate</i>)
Indian Association of Occupational Health, Bangalore	THE DIRECTOR
Indian Chemical Council, Mumbai	DR N. J. SINGH SHRI A. A. PANJWANI (<i>Alternate</i>)
Indian Institute of Chemical Technology, Hyderabad	SHRI RAJESHWAR RAO

<i>Organization(s)</i>	<i>Representative(s)</i>
Indian Institute of Toxicology Research (Formerly ITRC), Lucknow	DR VIRENDRA MISHRA DR V. P. SHARMA (<i>Alternate</i>)
Indian School of Mines, Dhanbad	PROF D. C. PANIGRAHI
Management Systems Certification Department, BIS	THE HEAD
Ministry of Environment & Forest, GoI, New Delhi	DR R. B. LAL
Ministry of Home Affairs, GoI, New Delhi	SHRI OM PRAKASH SHRI D. K. SHAMI (<i>Alternate</i>)
National Institute of Occupational Health, Ahmedabad	DR HR RAJMOHAN DR A. K. MUKHERJEE (<i>Alternate</i>)
National Safety Council, Navi Mumbai	DEPUTY DIRECTOR GENERAL SHRI A. Y. SUNDKAR (<i>Alternate</i>)
Office of the Development Commissioner (SSI), New Delhi	DR.IZZATULLAH SHRI S. K. AGGARWAL (<i>Alternate</i>)
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Petroleum & Explosives Safety Organisation, Nagpur	JT CH CONTROLLER OF EXPLOSIVES
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Tata Chemicals Ltd, Mithapur	SHRI R. C. BUCH SHRI D. D. THAKUR (<i>Alternate</i>)
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Member Secretary

SHRIMATI B. SANDHYA
SCIENTIST 'D', BIS

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